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Schorstein Lecture

ON THE

PRECURSORS OF CARCINOMA OF THE STOMACH.

Delivered at the London Hospital on Nov. 8th, 1929,

BY ARTHUR F. HURST, M.D. OXF., F.R.C.P. LOND.,
SENIOR PHYSICIAN TO GUY'S HOSPITAL.

EVERY year about sixteen thousand people die in Great Britain from cancer of the stomach. It is the cause of death in 5 out of every 100 people dying after the age of 40, and accounts for about one-third of all deaths from carcinoma. Even with the most modern methods of diagnosis the disease is rarely recognised sufficiently early to make it possible for a radical operation to be performed, and up to now treatment with deep X rays and with radium has met with little or no success. It is indeed doubtful whether permanent recovery occurs as the result of treatment in more than 1 or 2 per cent. of all cases of carcinoma of the stomach. So much progress has been made in the diagnosis of carcinoma of the stomach and in the technique of gastrectomy that, if all individuals suffering from suspicious symptoms were thoroughly examined without delay, many more cases could be operated upon with some hope of success. But even in the hands of the most experienced and skilful surgeons the prospects of cure would remain comparatively poor, so insidious is the onset of the disease, and so latent does it remain in its early stages.

It is clear that it is to prophylaxis rather than to improved methods of diagnosis and treatment that we must look for any real diminution in the high death-rate from carcinoma of the stomach. In my opinion such prophylaxis is possible, because I believe that carcinoma never invades a healthy stomach.

The actual development of carcinoma must, I suppose, be due either to a constitutional and perhaps inherited liability to the disease, or to the chance invasion of the individual by some external stimulant, as otherwise it would be impossible to explain why everybody suffering from the disorders of the stomach which predispose to malignant disease do not develop cancer. But until something is discovered which may make it possible to deal with this unknown exciting factor, our attention should be concentrated on the recognition and adequate treatment of the predisposing conditions. If this is done, I feel confident that the incidence of carcinoma of the stomach will in the next few years be greatly reduced.

I propose to approach the subject from a clinical standpoint before discussing the pathological evidence, because it was a study of the results of our clinical investigations in a series of cases of carcinoma of the stomach, undertaken in the preparation of a paper on the early diagnosis of carcinoma of the stomach for the International Conference on Cancer held in London last year,[1] which led me to the conclusions which I summarised on that occasion and which I propose, in the light of further experience, to discuss to-day.

ACHLORHYDRIA.

Fifty years ago van den Velder[2] discovered that carcinoma of the stomach is often associated with the complete absence of free hydrochloric acid from the gastric contents. Using the Ewald test-meal it was subsequently found that achlorhydria was present in about 80 per cent. of cases. The introduction of the fractional test-meal by Rehfuss in 1914 made is possible to recognise the presence of small quantities of free hydrochloric acid at one or more stages of digestion, which would have been missed by a single intubation. When this method was used, complete achlorhydria was found in only 50 per cent. of cases from the Mayo Clinic collected by Hartman[3] and in 65 per cent. of 74 cases at Guy's Hospital and New Lodge Clinic.

It has always been assumed that the achlorhydria is a result of the carcinoma, although none of the numerous theories which have been proposed to explain its occurrence appeared to be satisfactory. A study of the data obtained in our cases, and of those published by other investigators, has convinced me that this assumption is unjustified, and that the achlorhydria is a result of chronic gastritis, which precedes the onset of the carcinoma, and is in fact the most common predisposing condition.

I have never seen a case of carcinoma in which free hydrochloric acid was present at an early stage and disappeared as the disease advanced. I have also been unable to discover a single record of such a case, and not one of the numerous physicians with whom I have discussed the question has ever made such an observation. I have seen three cases of gastric ulcer in which a test-meal was given both before and after the onset of malignant degeneration. Hyperchlorhydria was present in two, and a normal curve of acidity was obtained in the third; in each case the degree of acidity was undiminished when the carcinoma had developed. The following is the history of the first case.

Carcinomatous Degeneration of Chronic Gastric Ulcer whilst under Observation.—A man of 66 had had typical symptoms of gastric ulcer for four years. On admission to New Lodge Clinic on Feb. 23rd, 1924, the diagnosis was confirmed by the discovery with the X rays of a large crater on the lesser curvature; this was associated with hyperchlorhydria and the constant presence of occult blood in the stools. He was given the usual treatment, and all symptoms disappeared within a week. He returned for re-examination on April 11th and again on May 18th; the X rays showed that the crater was much smaller, but as occult blood was still present I advised a continuation of strict treatment. He returned for the third time on June 22nd. He felt and looked strong and well, had gained 5 lb. in weight since his first admission, and had had no trace of indigestion. At this stage I thought that the small deformity still seen with the X rays must represent the scarred depression in the pancreas produced in the healing of the ulcer. Everything else seemed so satisfactory that I did not feel justified in advising operation simply because a trace of occult blood was still present in the stools.

Early in August, for the first time since the commencement of treatment, he experienced pain; it was quite different in character from the old ulcer pain, and was accompanied by nausea and anorexia. No relief followed careful dieting, and he returned to the clinic on August 31st. He had gained another 4 lb. in weight since June. Nothing abnormal was felt on abdominal examination. Occult blood was still present in the stools, and a most remarkable change had taken place in the X ray appearance in the nine weeks which had elapsed since the last examination. Instead of a very small niche with a smooth outline there was a large irregular deformity which was unmistakably due to malignant disease. The hyperchlorhydria was still present in undiminished degree.

A few days later Mr. L. Bromley performed a partial gastrectomy. A large thick scar was found on the lesser curvature, its centre forming a smooth-walled depression in the pancreas. Microscopical examination showed that carcinomatous changes were occurring on one side of the scar, and that the neighbouring mucous membrane was becoming infiltrated. There were no enlarged glands or secondary deposits. In spite of radiotherapy signs of recurrence appeared seven months later.

There can be little doubt that the persistent occult blood was due to the fact that malignant degeneration had already begun in March or April, probably before the ulcer had completely healed. This sign, therefore, preceded the earliest symptoms by five months and the earliest radiological changes by at least three months, and no diminution in gastric secretion had occurred in six months.

Mr. A. J. Walton[5] has stated that he has observed the acidity diminish when a chronic gastric ulcer became malignant. He tells me, however, that on re-examining the data which led him to make this statement, he discovered that the observations had been incorrectly recorded, and that he has as a matter of fact never observed such an occurrence.

I only know the history of two cases in which a test-meal had been given before as well as after the

development of carcinoma of the stomach associated with achlorhydria, and in both achlorhydria was already present on the first occasion.

In February, 1905, Alexander[6] was consulted by a man of 47, who gave a two years' history of epigastric discomfort and nausea; he was found to have achlorhydria, but no other evidence of organic disease. He derived some benefit from the administration of hydrochloric acid. In April, 1908, he began to have severe pain, and in May was found to have an inoperable growth of the stomach.

I am indebted to Dr. R. A. Veale for the notes of the second case.

A woman of 62 complained of fullness and burning after meals; in June, 1926, she was found to have achlorhydria with excess of mucus. Two years later a dull continuous pain and anorexia developed, and she became progressively more pale; in February, 1929, achlorhydria was again present, but an inoperable carcinoma of the pyloric end of the stomach was found on exploration.

Porges[7] states that he has seen cases in which achlorhydria was found to be present many years before the appearance of symptoms of carcinoma.

In a large proportion of cases of carcinoma of the stomach, which show unmistakable pathological evidence of being secondary to a chronic ulcer, free hydrochloric acid is found. This fact was noted as long ago as 1890 by Hauser[8] and 1903 by Riegel.[9] Free acid was present in my three cases referred to above, and in the only one of Stewart's ulcer-cancer cases, in which a fractional test-meal was given, a high normal curve of acidity was obtained.[10] In 12 out of 14 operative cases of definite ulcer-cancer described by Orator[11] free hydrochloric acid was found with an Ewald test-meal; it is not unlikely that a fractional test-meal would have revealed the presence of free acid in one or more fractions in the two remaining cases. On the other hand, achlorhydria was found in 7 out of 8 cases, in which the carcinoma appeared to be "primary."

Using a fractional test-meal free hydrochloric acid was found in all but one of 11 Guy's Hospital and New Lodge Clinic cases of carcinoma of the stomach with more than 18 months' history, whereas 17 out of 19 with a history of less than six months had achlorhydria.

TABLE I.—*Length of History (24 N.L.C. and 14 Guy's).*

No. of cases.	Free HCl in fractional test-meal.	Less than 6 months.	6–18 months.	18 months and over.	Average (excluding*).
14	Present.	2 (5/12; 6/12)	2 (10/12; 12/12)	10 (1½, 1½, 1½, 2½, 3½, 4, 4, 12, 12, 30 years*)	3 years.
24	Absent.	17	6	1 (20 years*)	9 months.

Most of the former were presumably cases of ulcer-cancer and of the latter "primary" cancer. In 1911 Panton and Tidy[12] had obtained similar results with the less accurate Ewald test-meal; they found that 20 out of 25 cases with a history of nine months or less had achlorhydria, whereas 4 out of 5 with a history of more than two years had free acid present. Stewart[10] found tha tthe average duration of symptoms in 11 cases of definite ulcer-cancer was 6½ years or only a year less than the average duration of symptoms in a contemporary series of 146 cases of simple gastric ulcer, whereas in 48 cases of "primary" cancer it was one year, and in 10 out of Orator's[11] 16 cases of ulcer-cancer symptoms had been present for periods varying between 1 and 28 years, whereas in 5 out of 7 cases of "primary" cancer there was less than a year's history. It seems clear therefore that when free acid is present the carcinoma is likely to be secondary to ulcer, and when achlorhydria is present it is generally secondary to gastritis. Thus achlorhydria is not a sign of advanced carcinoma, in the early stage of which free acid was present, as the duration of symptoms would then tend to be considerably shorter when free acid is present than in cases with achlorhydria, whereas the reverse is actually the case.

It is natural that there should be exceptions to the general rule as to the association of free acid with ulcer-cancer and achlorhydria with gastritis-cancer, and to the relative duration of symptoms in cases with free acid and with achlorhydria. Thus achlorhydria may occur in very chronic cases of ulcer owing to secondary gastritis, and gastritis does not invariably lead to the complete disappearance of free acid from the gastric contents. Moreover, gastric ulcers are occasionally latent for long periods, and chronic gastritis, though generally latent, sometimes gives rise to definite gastric symptoms.

If achlorhydria was a result of the development of carcinoma in a stomach which had previously secreted a normal gastric juice, the prospect of survival after operation would be considerably better in those cases in which free acid was present than in those with achlorhydria. This, however, is not the case, as on analysing the results of operation five years after gastrectomy had been performed for cancer of the stomach, Hartman[3] found that 44 per cent. of 29 patients who had had complete achlorhydria were still alive, compared with only 22 per cent. of 41 with free hydrochloric acid. These figures strongly support the view that achlorhydria precedes the development of carcinoma and is not its cause.

CHRONIC GASTRITIS.

Under normal conditions the food is finely divided, softened, diluted, and brought to the body temperature in the mouth, so that any irritation which it might exert on the gastric mucous membrane as a result of its physical and chemical properties is, to a large extent, prevented. When, however, food is insufficiently prepared, owing to bolting or inadequate teeth and dentures, the stomach is called upon to carry out the neglected functions of the mouth in addition to its normal functions of digesting proteins. In the process of breaking up, softening, diluting, and warming cold or cooling hot food, in order that the insufficient preparation in the mouth should not interfere with intestinal digestion, the mucous membrane of the stomach is irritated and excess of protective mucus is secreted by the superficial cells of the mucous membrane. If long continued this irritation may eventually give rise to catarrhal gastritis, especially if the quantity of gastric juice secreted is less than the average. It is clear, for example, that the effect of strong alcoholic drinks taken apart from meals will be particularly deleterious in an individual with a stomach which habitually secretes a small quantity of gastric juice. Thus constitutional hypochlorhydria and the constitutional achylia gastrica, which occur respectively in about 8 and 4 per cent. of normal individuals (Bennett and Ryle)[13] predispose to chronic gastritis, whereas constitutional hyperchlorhydria tends to prevent its development.

Chronic catarrhal gastritis is characterised by the continuous secretion of mucus in excess of that normally called forth in response to temporary irritation. This tends to form a tenacious layer which adheres to the surface of the mucous membrane, as can often be demonstrated post mortem. Consequently the mouths of the gastric glands are blocked, and the gastric juice, which the still undamaged glands secrete, is unable to reach the lumen of the stomach; at the same time the raised pressure in the ducts must result in the inhibition of further secretion. If any juice still enters the stomach some or all of the free acid combines with the mucus. Knott[15] has shown that the resulting acid-albumin does not activate pepsin and exerts no destructive action on bacteria.

A vicious circle is now set up. Owing to the diminution or complete disappearance of the gastric juice the food is no longer softened and diluted in the stomach, so that any mechanical or chemical irritants

it may contain still further damage the mucous membrane. The churning movements of the stomach break up the food less efficiently, as the connective tissue of meat and the cellulose of vegetables remain unsoftened. At the same time the antiseptic barrier normally offered by the acid of the gastric juice is lost. Streptococci from septic teeth, tonsils, and nasal sinuses flourish in the neutral or slightly alkaline contents of the stomach and invade the intestines, and Knott [16] has shown that the increased alkalinity of the contents of the small intestine, which occurs when little or no free hydrochloric acid enters the duodenum, results in the invasion of the small intestines and stomach with the colon bacillus. The mucous membrane of the stomach is now attacked by organisms, especially streptococci, and a true infective gastritis develops.

In the earlier non-infective stage the chronic catarrh is little more than an exaggeration of the normal secretion of mucus which occurs in response to the application of mechanical and chemical irritants, only the superficial parts of the mucous membrane being involved. The infective gastritis, on the other hand, leads to progressive damage of the secreting tubules; the mucous membrane which is at first thickened finally becomes atrophied, and the cells which produce hydrochloric acid and pepsin are gradually destroyed, so that true achylia results. Complete recovery from the early catarrhal gastritis with a return of normal secretion occurs if the irritation is discontinued and the mucus is washed away, but the atrophy of the secreting tubules which results from the later infective gastritis and the consequent achylia are irrecoverable.

Chronic gastritis may also be a sequel of the acute gastritis caused by food poisoning. I have seen several cases in which the history clearly pointed to such an origin, and in the rare instances in which we have had an opportunity of examining patients within a few weeks of the acute attack we have found that no free hydrochloric acid was present in the stomach, but that there was a great excess of mucus and often more or less blood, which only very slowly disappeared. In the Schorstein Lecture of 1927 Faber [14] described the chronic gastritis which may result from general infections, such as the acute fevers and tuberculosis. I have certainly seen cases in which it appeared to be a sequel of an attack of influenza, in which abdominal discomfort and vomiting were prominent symptoms. I am convinced that so-called gastric influenza represents a definite clinical condition, in which the resulting chronic gastritis and achlorhydria may be the starting-point of a variety of secondary disorders, the connexion of which with influenza has in the past frequently been regarded as imaginary.

Chronic gastritis with complete achlorhydria is often completely latent; probably the majority of cases give rise to no symptoms of any kind. It may, however, be the direct cause of nausea and vague gastric discomfort, though it never gives rise to pain or vomiting, and the gastric symptoms are rarely sufficiently marked for the patient to seek medical advice for their relief. Symptoms are more often due to the secondary effect of achlorhydria on some other organ than to the gastritis itself. Thus it is the most common of all causes of chronic diarrhoea. The achlorhydria which is an essential predisposing cause of the Addison's anæmia-subacute combined degeneration of the spinal cord-Hunterian glossitis syndrome, is, as I have shown elsewhere,[17] almost as often the result of chronic gastritis as of constitutional achylia gastrica. It is also an important factor in the production of all intestinal infections, chronic appendicitis and cholecystitis, and less frequently of rheumatoid arthritis and other general disorders.

Until recently our knowledge of the pathological anatomy of chronic gastritis was very deficient owing to the rapid post mortem changes which take place in the mucous membrane, although Faber's method of injecting formalin into the stomach immediately after death yielded important results. During the last few years a number of German pathologists have made a special study of the whole of the mucous membrane of specimens obtained by very extensive, though generally incomplete, gastrectomy performed for chronic ulcer and carcinoma. They have shown that in all cases of carcinoma gastritis is present. In those cases in which it appears to be "primary," well-marked atrophic gastritis is present throughout the stomach, whether the growth is small or widespread. Thus Orator [10] found diffuse, generally atrophic, gastritis involving the fundus as well as the pyloric region in 19 out of 20 such cases; in the remaining case, one of pyloric cancer, there was a very long history of alcoholic gastritis, but most of the mucous membrane of the fundus, though slightly inflamed, was not atrophic. On the other hand, although there was well-marked gastritis in the pyloric region in each of his eight cases of definite ulcer-cancer, in five the mucous membrane of the fundus was perfectly healthy, in two it showed slight gastritis, and in only one was severe gastritis present. Konjetzny,[18] Faber,[14] and others have shown that more or less localised gastritis is present in all or almost all cases of chronic ulcer, which explains its association with ulcer-cancer. This makes the presence of universal atrophic gastritis in cases of so-called "primary" carcinoma all the more significant. It seems clear in fact from the clinical and pathological evidence that the carcinoma is no more primary than in the ulcer-cancer cases, but is secondary to the gastritis, so that this form of cancer of the stomach should be called gastritis-cancer in contrast with ulcer-cancer which is due to malignant degeneration of a simple ulcer.

Chronic Gastric Ulcer.

The difficult question of the development of carcinoma from simple ulcer of the stomach has been very thoroughly investigated by Stewart,[19] and I cannot do better than quote his conclusions in his own words.

"In my series of 259 specially studied operation specimens there were 11 which, in my opinion, fulfilled all the criteria, both anatomical and clinical, of ulcer-cancer. The results are shown in Table II.

TABLE II.—*Frequency of Ulcer-cancer (Stewart).*

70 cancers—11 arising in ulcer	15·7 per cent
180 chronic ulcers—11 with cancer in the margins	6·1 „

"These figures for the incidence of ulcer-cancer are rather lower than those previously published from Leeds[19]—viz., 17·5 and 9·4 per cent. respectively. This is due to the exclusion from the ulcer-cancer group of certain cases, previously included, in which a large part of the floor of the ulcer was cancerous, and in which, incidentally, the clinical history was 18 months or less. In the present series three of the cases had histories extending over 2½, 3, and 4 years respectively; all the others had had symptoms for five years or longer. Now it is undoubtedly true that a certain number of cases of chronic ulcer coming to operation give a comparatively short clinical history, while extensive cancerous infiltration of the crater floor does not, of itself, necessarily exclude ulcer-cancer. I am inclined to think, therefore, that if anything these latest figures err on the side of being too conservative; at the least, they must be taken as the absolute minima so far as the present series of cases is concerned."

Further analysis of his figures show a remarkable difference in the liability to malignant degeneration when the common lesser curvature ulcers are compared with the rare prepyloric ulcers. Thus although only 3 out of 50 of the common carcinomata of the pyloric region were secondary to ulcer, compared with 8 out of 12 of the comparatively rare lesser curvature carcinomata, no less than 3 out of 9 ulcers in the pyloric region showed malignant changes, compared with only 8 out of 172 in the lesser curvature region. In a similar series of 334 resections for ulcer Orator found 11 out of 34 in the pyloric region showed malignant changes compared with 6 out of 300 in the lesser curvature region.

Adenoma of the Stomach.

Polypous adenomata were present in 47 out of 11,000 autopsies performed by Stewart[20]; in 27 they were single, in 7 there were two, in 1 three, and in 2 four; in 10 they were numerous. Six of the 27 cases (22 per cent.) with a single polypus and 7 of the 20 with multiple polypi (35 per cent.) were associated with carcinoma. As there were 263 cases of carcinoma of the stomach in the same series, about 5 per cent. of the latter were probably secondary to simple adenomata. This condition seems to be distinct from the very rare polyposis of the stomach, in which hypertrophic gastritis has led to the development of innumerable polypoid masses scattered over the greater part of the stomach. The mucous membrane in this condition, as Menetrier[21] was the first to find out, is also very liable to undergo malignant degeneration.

Localisation of Carcinoma of the Stomach.

Although the type of gastritis which predisposes to cancer appears to affect the whole or the greater part of the stomach more or less uniformly, and although a very large majority of chronic ulcers are situated on the lesser curvature of the stomach and in the duodenal bulb, cancer is much more common in the pyloric region than anywhere else in the stomach and it never involves the duodenal bulb. It is clear, therefore, that there must be some other factor predisposing to the development of cancer when the pyloric region is affected by chronic gastritis or by chronic ulceration, which is present to a much less marked degree in the rest of the stomach and is completely absent from the duodenum. This factor is probably friction. When the normal gastric movements are watched with the X rays, it is clear that the mucous membrane of the fundus of the stomach and of the duodenal bulb is never subjected to friction. There is very little friction in the body of the stomach, but it steadily increases in intensity as the pylorus is approached, owing to the increasing depth of the waves of peristalsis, which begin at the junction of the upper and middle thirds of the stomach and only give rise to definite churning movements in the pyloric vestibule. No churning occurs either in the fundus of the stomach or in the duodenal bulb.

Addison's Anæmia and Subacute Combined Degeneration of the Cord.

I have seen three cases of typical Addison's anæmia, one of which was accompanied by subacute combined degeneration of the spinal cord, associated with cancer of the stomach, and several similar cases have been recorded. In commenting on the first of my cases, which was reported by Waterfield[22] in 1923, I suggested that the nervous symptoms and anæmia were a result of the achlorhydria, to which the carcinoma had given rise, although weakness and paræsthesia of the feet were present before any gastric symptoms had developed. Porges[7] mentions a case in which a small, non-ulcerated, carcinoma of the stomach, no larger than a pea, which had given rise to no symptoms, was found at the autopsy of a patient who had died of Addison's anæmia. I now realise that the carcinoma was probably secondary to chronic gastritis, and that the subacute combined degeneration of the spinal cord and anæmia resulted from the achlorhydria which was present before the carcinoma developed. As achlorhydria is an essential predisposing factor in the production of Addison's anæmia and subacute combined degeneration of the cord, it is natural that the latter should be occasionally associated with carcinoma of the stomach, whether the gastritis which precedes its development is the cause of the achlorhydria or is simply secondary to constitutional achylia. It is interesting to note that no case has ever been recorded of the association of Addison's anæmia with a simple ulcer of the stomach or duodenum, as these conditions require the presence of free hydrochloric acid for their development.

Origins of Cancer: A Summary.

It is now possible to summarise my conclusions as to the origin of an average hundred cases of carcinoma of the stomach.

1. (*a*) In about 75 per cent. of cases the carcinoma is secondary to chronic atrophic gastritis; these comprise a large majority of those with a short history, almost all of those with achlorhydria, and most of those with hypochlorhydria. (*b*) In about ½ per cent. of cases the carcinoma is secondary to polyposis of the stomach, which is probably a result of hypertrophic gastritis. The history is generally long and achlorhydria is probably always present.

2. In about 20 per cent. of cases the carcinoma is secondary to chronic gastric ulcer; these comprise a large majority of those with a long history, all of those with hyperchlorhydria and a high normal curve of acidity, and almost all of those with the average normal acidity.

3. In about 4½ per cent. of cases the carcinoma is secondary to a simple adenoma of the stomach. The history is likely to be short, and there is nothing characteristic about the test-meal.

Prophylaxis.

The ideal form of prophylaxis would be not merely to recognise and treat the common precancerous gastric conditions, chronic gastritis and chronic gastric ulcer, but to prevent their development. The chief exciting causes of the two conditions are identical; the presence of one or other of the predisposing constitutional conditions determines whether either of them should develop. Prophylaxis of this kind is of the simplest nature; prevention of oral sepsis by adequate dental hygiene and frequent and efficient dental treatment; removal of septic tonsils in childhood and the early recognition and treatment of sinusitis complicating such infections as influenza; regular hours for meals and thorough mastication: avoidance of the excess of "roughage" advocated by most up-to-date food faddists; strict moderation in smoking and in the consumption of alcohol.

Theoretically it should be possible to recognise and cure the conditions which predispose to carcinoma of the stomach.

1. *Chronic Gastritis.*

(*a*) *Diagnosis.*—Although chronic gastritis rarely gives rise to gastric symptoms which are sufficiently serious to call for investigation, the associated achlorhydria is often the cause of various other conditions which lead the patient to seek for medical advice. Owing to its frequent association with chronic diarrhœa, chronic cholecystitis and gall-stones, chronic appendicitis, the Addison's anæmia-subacute combined degeneration of the spinal cord, Hunterian glossitis syndrome, and rheumatoid arthritis it is often discovered incidentally when patients suffering from these conditions are investigated with proper thoroughness. It should be remembered that no patient suffering from any one of these conditions can be regarded as "cured" if the end-result is alone treated; a patient with chronic appendicitis or gall-stones, for example, is almost certain to have further trouble sooner or later if his appendix or gall-bladder is removed and the associated achlorhydric gastritis is ignored.

A test-meal should also be given to patients who have had an attack of serious food poisoning or "gastric influenza" associated with abdominal pain and vomiting. By this means it is possible to recognise that form of chronic gastritis which is a sequel of acute gastritis, and which may, if left untreated, give rise to serious trouble later, possibly only after an interval of many years.

When those cases of chronic gastritis which come to be examined on account of gastric symptoms

or the presence of secondary conditions and those which are a sequel of acute gastritis are excluded, there must remain a considerable number which are completely latent in their onset and in their course. It is not uncommon nowadays for educated people to ask for a complete physical overhaul from time to time, even when they are feeling quite well. Such a proceeding is very wisely encouraged by certain insurance companies in America. If such an overhaul included a test-meal, the presence of chronic gastritis would be recognised, and steps could be taken to treat it and thus prevent the possibility of the subsequent development of the various conditions, including carcinoma of the stomach, to which achlorhydria gastritis predisposes. The development of the type of atrophic chronic gastritis which may undergo malignant degeneration is a very slow process, so that if an overhaul given at the age of 40 includes a test-meal, which gives a normal or high curve of acidity and shows no excess of mucus, the test-meal need not be repeated for at least five years. After that it would probably be wise to repeat it every five years up to the age of 65.

(*b*) *Prognosis.*—In every case of achlorhydria a second test-meal should be given immediately after thorough lavage of the stomach. We have now done this for six years, and have found that in about 50 per cent. of cases free hydrochloric acid appears in the second test-meal. In these cases the prognosis is comparatively good, as the condition is still largely catarrhal; when a normal or high curve of acidity is obtained it can be concluded that little or no atrophic changes have so far taken place in the gastric mucous membrane. On the other hand, when no trace of acid is present in the second test-meal, the patient has either constitutional achylia gastrica, which may or may not be associated with secondary gastritis, or he has a comparatively advanced stage of primary atrophic gastritis. Though the inflammation may be overcome by treatment, nothing can prevent the possibility of the abnormal mucous membrane subsequently undergoing malignant degeneration.

(*c*) *Treatment.*—A diet should be given which contains no mechanically irritating constituents, such as the pips and skins of fruit, coarse vegetables, salads, and tough meat, and no chemical irritants such as alcohol and a large proportion of drugs in common use, except in an extremely dilute form. The food should be very thoroughly masticated, and proper dentures supplied when required. Pyorrhœa alveolaris and infected tonsils and nasal sinuses should be very thoroughly treated, and the dentist should be visited at least every six months.

The stomach should be washed out each morning before breakfast with dilute hydrogen peroxide (one drachm to the pint), the lavage being continued until no further mucus comes away; the final washing should be with plain water. The nascent oxygen set free when the hydrogen peroxide comes into contact with the mucus dislodges it much more efficiently than any other fluid, and at the same time it acts as an antiseptic. The treatment, which the patient soon learns to give himself, is continued daily with gradually increasing strength of hydrogen peroxide until no more mucus is present. It should then be continued on alternate days, then twice a week, and finally once a week for some months. Another course of treatment should be given if there should be a recurrence of symptoms, and in any case a test-meal should be given once a year, so that if the gastritis returns it can be treated without delay.

At one time I advised the administration of large doses (3i to 2) of dilute hydrochloric acid with pepsin, suitably diluted, before breakfast, and as a beverage with lunch and dinner, in all cases of achlorhydria. It is clear, however, that it is far better to restore the normal secretion of acid by treating the gastritis whenever this is possible. I therefore only give acid in those cases in which there is still no acid or insufficient acid after the second test-meal; a third test-meal should be given at the end of the first course of lavage, as the acid may have then returned even if none was present in the second test-meal, or extreme hypochlorhydria may have given place to a normal curve of acidity. Only when hypochlorhydria or achylia is found at the third test should hydrochloric acid be given continuously. It is not only useful for digesting meat and softening and diluting the food, but its antiseptic action helps to overcome the gastric infection and to prevent reinfection from the mouth or bowel.

Polyposis of the stomach.—This condition gives rise to symptoms suggestive of malignant disease. But the history is likely to be a long one without any recent aggravation, and there is generally little or no pain. In the only uncomplicated case of the kind I have seen weakness from the long-continued severe anæmia caused by the constant oozing of blood had been present on and off for nine years, together with nausea and occasionally attacks of diarrhœa and sickness.

The condition is sometimes indistinguishable from cancer with the X rays, but it may give such a characteristic picture that occasionally a correct preoperative diagnosis has been made. Achlorhydria is generally present, and one or more fractions contain blood, which is therefore always present in the stools.

The only safe treatment is partial or complete gastrectomy, as malignant degeneration may occur at any time, and it may be impossible to tell clinically or on abdominal exploration whether this has already begun. In my case, which I recorded with Adrian Stokes,[23] almost complete gastrectomy was successfully performed by Mr. Lancelot Bromley.

2. *Chronic Gastric Ulcer.*

(*a*) *Diagnosis.*—Though often latent in its early stages, a chronic gastric ulcer sooner or later almost always gives rise to symptoms, which, though less characteristic than those of duodenal ulcer, are sufficiently well marked and persistent to call for further investigation. It is possible to recognise the presence of every chronic ulcer of the stomach with the X rays, but it is always desirable to obtain further information by means of a test-meal and by examining the stools for occult blood before carrying out treatment.

(*b*) *Prognosis* and (*c*) *treatment.*—A gastric ulcer can be regarded as successfully treated when it has been replaced by a sound scar. This not only results in the disappearance of symptoms, but there is very little danger of malignant degeneration of a scar. In Stewart's[9] series of 259 specially studied operation specimens there was only one example of cicatrix-cancer compared with 11 of ulcer-cancer. I am convinced that all chronic ulcers of the stomach, however large and however deeply they may involve the pancreas, are capable of healing under prolonged medical treatment so long as they have given rise to no mechanical obstruction. When, however, an hour-glass stomach has developed or a prepyloric ulcer has caused pyloric obstruction, an operation should be performed. In my experience a gastro-gastrostomy, which is a far easier operation than excision, is all that is required for an hour-glass stomach; the ulcer always heals, and, moreover, it is a remarkable fact that ulcers causing hour-glass constriction rarely, if ever, become malignant. Theoretically the rare prepyloric ulcers, like the much more common duodenal ulcers which cause obstruction, would seem to call for gastro-jejunostomy, which always results in rapid healing; but as no less than 3 out of Stewart's 9 and 11 out of Orator's 34 prepyloric ulcers removed at operation showed clear signs of malignant degeneration, partial gastrectomy should be performed in all cases, as it may be quite impossible to recognise early malignant changes by simple inspection, and the X rays give far less definite information than in the case of lesser curvature ulcers. I can, however, see no reason for advising surgical treatment of a gastric ulcer producing no obstruction. Those cases in which

medical treatment requires to be prolonged to three or four months are just those in which radical surgical treatment is difficult or impossible. Though gastro-jejunostomy may ameliorate the symptoms, the ulcer often does not heal, and so the possibility of malignant degeneration is not prevented. Jejunostomy does nothing which medical treatment cannot do more efficiently, and I have had two cases in which an irremovable ulcer near the cardia only healed on allowing the jejunostomy to close and instituting the usual medical treatment. As local excision was followed by recurrences within a year in 43 per cent. of 78 cases in the combined statistics of Dobson,[24] Sherren,[25] and Collinson,[26] recurrence would probably occur sooner or later in quite 75 per cent. of cases. Quite apart from the fact that partial gastrectomy, the only really radical operation for gastric ulcer, is only possible in those cases in which medical treatment is most likely to be effective, the mortality in the hands of the average hospital surgeon is probably at least twice as great as the risk of malignant degeneration, which was present in 4·6 per cent. of Stewart's 172 cases and 2 per cent. of Orator's 300 cases of lesser curvature ulcers. It is clearly wiser to undergo adequate medical treatment, if necessary prolonged for as much as three months, and survive, than run the risk, small as it may be, of death from operation. Whether the treatment is medical or surgical, it is, of course, essential to remove all foci of infection and to give the patient written instructions as to the régime he must follow in order to prevent a recurrence.

3. *Adenoma of the Stomach.*

Simple adenomata of the stomach, whether single or multiple, rarely give rise to any symptoms. If recognised, they should be excised on account of the great danger of malignant degeneration.

If the conclusions I have drawn in this lecture prove to be correct, the last word will be with the general practitioner and the physician, whose duty it will be to teach prophylaxis and to recognise the first signs of the precancerous conditions of the stomach. We may then confidently look forward to a time when the disorders, so ably described by Sherren and by Walton at this hospital as the "surgical dyspepsias," will cease to be surgical, for while some will be prevented, the remainder will be diagnosed at a stage in which they are still curable by non-operative treatment.

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ON THE
SYMPTOMATOLOGY OF INTESTINAL AMŒBIASIS.

BASED ON A STUDY OF 150 CASES.

BY PHILIP MANSON-BAHR, D.S.O., M.D. CAMB., F.R.C.P. LOND.,

PHYSICIAN TO THE HOSPITAL FOR TROPICAL DISEASES, LONDON;

AND

C. B. V. TAIT, M.R.C.S. ENG.,

LATE HOUSE PHYSICIAN TO THE HOSPITAL.

THE more extensive his experience of intestinal amœbiasis, the more the practitioner is bound to be impressed by the great variety of the symptoms which infection with *Entamœba histolytica* may provoke. No very great difficulty is to be apprehended in diagnosing the classical type of intestinal amœbiasis in patients complaining of a definite abdominal syndrome and the passage of blood and mucus in the stools; but it is by the less dramatic forms, or by those which present symptoms which might well bear a different interpretation, that one is liable to be led astray. During recent years we have been greatly struck by the diverse character of the amœbic syndrome, and did we not make it an invariable practice to examine the fæces microscopically in every case from the tropics presenting abdominal symptoms, we feel morally certain that, in quite a considerable proportion of cases, the correct diagnosis would have been missed. There are certain bizarre types in which constipation and flatulence constitute the outstanding features; others in which there is chronic diarrhœa; others again in which the symptoms appear to point to the gall-bladder, stomach, duodenum, and appendix as the seat of the trouble.

A study of the recent literature of intestinal amœbiasis reveals the fact that other observers, especially in America, have drawn attention to similar phenomena. James and Deeks,[1] in 1924, and more recently James[2] alone, have found that latent *histolytica* infections far exceed in number those associated with purely dysenteric symptoms at the time of examination. The latter is convinced that in Central and Northern South America *histolytica* infections cause a very large proportion of obscure gastro-intestinal troubles. Craig[3] also believes that the classical picture of amœbic dysentery is noted only in a minority of cases infected with *E. histolytica*. Musser,[4] in 1925, published an excellent account of the subject viewed from the clinical aspect. He remarks that out of 72 cases definitely diagnosed as amœbic dysentery, no less than 40 complained of chronic diarrhœa; 1 was admitted on account of asthma, 2 on account of rectal pain, and 13 on account of varying degrees of pain in the abdomen. Montier,[5] in 1922, described the more obscure forms of amœbic colitis. Some patients, he has noted, may even be constipated, whilst the misleading forms are those cases of intestinal amœbiasis in which the main symptoms are located to the right hypochondrium or to the hepatic flexure of the colon where the diagnosis has to be made from hepatic and biliary disease.

It is with the idea of emphasising the importance of these aberrant forms that we have analysed the symptoms of 150 consecutive cases of amœbic dysentery as they have occurred in practice during the last nine years. With a few exceptions, all these cases have acquired their infections in the tropics and have returned to England for treatment. In every case cited in this paper the diagnosis has been rendered absolute by the discovery of the active forms or cysts of *E. histolytica* in the fæces; these diagnoses have been reinforced in the majority of instances by sigmoidoscopic examination. The main features of this inquiry may be summarised in the accompanying table.

Analysis of 150 Cases of Amœbic Dysentery, Symptomatology, &c.

Distribution of Pain.

(Male cases, 133. Female, 17.)

	Cases.
Abdominal pain or discomfort—	
Present in	126
Absent in	24
Generalised abdominal pain	70
Epigastric discomfort	19
Liver area	9
Gall-bladder area (right costal margin)	2
Right shoulder (referred pain)	2
Gastric localised	3
Duodenal localised	1
Transverse colon	1
Cæcal and appendicular	7
Sigmoidal and descending colon	10
Lumbar localised	2

Maxima and Minima.

	Years.
Age at onset—	
Maximum	64
Minimum	10 10/12
Maximum duration	30
Maximum period without active symptoms	6

Bowel Symptoms.

	Cases.
Diarrhœa	114
Alternating diarrhœa and constipation	8
Constipation	11
Normal regularity of motions	17
Flatulence	37
Tenesmus	34
Blood and mucus in stools	71
Mucus only in stools	18

General Symptoms.

	Cases.
Pyrexia	13
Hepatitis	9
Emaciation	43

Previous Diagnoses.

	Cases.
Neoplasm of pancreas—laparotomy	1
Cholecystitis and cholelithiasis	3
Appendicitis and appendicectomy	4
Duodenal ulcer	1
Tuberculosis	1
Bacillary dysentery	1
Septicæmia (pyrexial case)	1

Intercurrent Diseases.

	Cases.
Kala-azar	1
Hepatic abscess	5
Tuberculous mesenteric glands	1
Pulmonary tuberculosis	1
Malaria and ankylostomiasis	1
Malaria and ascariasis	1
Cystitis	1
Pregnancy	1
Pneumonia	1
Malaria	2
Sprue	2
Gonococcal epididymitis	1

Sex and Age Incidence.

A number of points present themselves for discussion. The overwhelming preponderance of the male is easily explicable by the greater exposure of men to liability of infection, and the relative smaller number of women proceeding to the tropics.

As regards age incidence, intestinal amœbiasis, in the European, at any rate, is a disease of adult life. Personally we have never seen amœbic dysentery in young children. What is generally taught, and we maintain to be true, is that dysentery in children is almost invariably bacillary in origin, and that amœbic dysentery is rarely, if ever, contracted before the tenth year. As will be seen by the table, the minimum age at onset in this extensive series is 10 years 10 months.

In this case the patient was the son of a missionary, who was working in the Shantung Peninsula, China. He had been born in China, and returned to England in March, 1927. Whilst in China he had one attack resembling dysentery. The real attack of classical amœbic dysentery commenced soon after his return to England in March and December, 1927. He was seen in the third relapse in February, 1928. The boy was passing typical blood and mucus stools, of which he had three to four daily. His general health was not much undermined, and there had been no appreciable loss of weight. The fæces contained numerous active *E. histolytica*. An apparently permanent cure took place after anti-amœbic treatment.

The oldest case in this series was a retired official, aged 64, who had returned from Burmah in 1922. Two years after his retirement he commenced to suffer from intermittent attacks of diarrhœa without obvious dysenteric signs. The fæces were found to contain *E. histolytica* cysts.

Latency.

Duration of Infection.—That intestinal amœbiasis may be one of the most persistent of all protozoal infections is well known. In four cases in this series the infection with production of symptoms had persisted for over 20; in one instance it had lasted 30 years.

This patient, a retired planter from Ceylon, had first contracted dysentery in 1897, and had suffered intermittently from colitis ever since. When seen in May, 1927, he was passing diarrhœic fæces containing *E. histolytica* cysts, which were successfully cultivated on Boeck and Drbohlav's medium.

A second case was seen in a printer in 1928. In this case the infection had lasted 29 years, and had been contracted on military service in India. This man had been residing in England for 28 years. In a third, seen in 1929, the infection had been contracted during the South African war in 1901, and he had continued to suffer from dysenteric attacks almost periodically since. Some ten years ago appendicostomy had been performed, and the colon periodically washed out. Although this afforded relief, it had not by any means cured the condition as *E. histolytica* cysts were found in the fæces.

That the symptoms of dysentery may vanish temporarily, even for long periods, with apparent restoration to health, has long been recognised: a year or more may elapse after the cessation of treatment before signs of the disease make themselves evident. Symptoms of dysentery may also become apparent long after the return from the source of infection. There may be a latent period of six years, as in the following case:—

A hairdresser was seen in 1929. He gave a history of frequent attacks in India, where he was born and had spent his youth. Returning to this country in 1922 he had good health for six years, and it was not till the end of 1928 that blood and mucus again appeared in the fæces. On his admission to St. Mark's Hospital the amœbæ were easily recognised in scrapings made from intestinal ulceration by sigmoidoscopy, and the case was kindly referred to us at the Hospital for Tropical Diseases, where the diagnosis was confirmed.

A second case was seen in 1923 in a soldier who served in France in 1916, where he evidently contracted the infection. Fresh symptoms of amœbic dysentery first became apparent in 1922, when the nature of the disease was proved at sigmoidoscopy and active *E. histolytica* were found in scrapings made from the bowel.

Latent periods of two or three years are comparatively common. It is the honest appreciation of this peculiarity of intestinal amœbiasis which renders it so very difficult to assess the permanent value of any particular form of treatment. It seems that the clinician has to wait six years or more to finally ascertain whether the cure has in effect been successful.

The recurrence or relapse may be acute; the onset sudden with violent diarrhœa and loss of weight. In one instance the quiescent period appeared to be as long as nine years.

This was in a sea captain who was seen in June, 1928, in an acute attack of amœbic dysentery. Cysts of *E. histolytica* were found in the fæces, and on sigmoidoscopy the typical ulceration was seen. The history clearly indicated that dysentery commenced in 1910, and that the last definite recurrence had been in 1919, when the organisms were discovered in the fæces in Liverpool.

Symptoms.

Localisation of Pain.—The absence of any distressing abdominal pain and general innocuity of the symptoms and their compatability with fair health are an outstanding feature. No very evident signs were elicited in 24 cases. In other words, amœbic dysenteric infection may be compatible with average good health.

In intestinal amœbiasis subjective pain is, as a rule, localised to certain definite areas of the large bowel; it may be, as it usually is, confined to the sigmoid and descending colon (ten cases), or to the opposite side of the abdomen, to the cæcum and appendicular area. In seven cases of this series the pain experienced by the patient and elicited by pressure was confined to the cæcum, the outlines of which can occasionally be ascertained on deep palpation. This localisation of pain is often mistaken for appendicitis, and not unnaturally the appendix may be at first suspected and removed. While not denying the frequency of true appendicitis in tropical countries, the coexistence of amœbic dysentery with pain localised to the cæcum is frequently mistaken for it. So far we are not convinced that we have encountered a case of appendicitis primarily due to amœbic infection.

Pain may be localised to the centre of the transverse colon, and an area of deep tenderness may be elicited

in the epigastric triangle. The localisation of amœbic ulceration to this part is rare without the implication of other tracts of the large bowel; but when it does occur it may be most misleading. This accounted for six cases in our series: two in which the pain was registered at the outer border of the right rectus muscle and had been mistaken for gall-bladder tenderness, three in which the pain appeared in the stomach itself, and one in whom it was definitely located to the transverse colon. Then there is a small group in which the abdominal pain is referred to the lumbar region, in which case suspicion of renal trouble was quite justifiably entertained.

Emaciation is the rule in acute amœbic dysentery. In 43 cases of this series the usual loss of weight is from 14–28 lb. in a year, the greatest loss recorded being one of 42 lb. in three months. On the other hand, chronic intestinal amœbiasis so little interferes with nutrition that actual increase of body-weight, even to the extent of obesity, may be recorded. We have records of three cases in which a considerable increase of body-weight occurred. In one the duration of the disease with acute symptoms was of ten years, with an increase of 28 lb.; another in a soldier, of four years' duration, with a similar increase; a third in a lady, of three years' duration, who had in the meantime become extremely stout, but no actual figures of weights were obtainable.

Bowel Symptoms.—Obvious and chronic diarrhœa, without the appearance of blood and mucus in the stools, was the outstanding feature in no less than 114 cases. This significant fact gives support to Dobell's contention that the term "amœbic diarrhœa" must, in the majority of instances, supplant the term "amœbic dysentery." We believe that chronic "amœbic diarrhœa" is a much more common complaint than "amœbic dysentery," and that in a great many instances these amœbic diarrhœas are painless and are not accompanied by any very evident involvement of the bowel wall. Usually periods of diarrhœa alternate with those of constipation (eight cases). On the other hand, the anomalous fact asserts itself that constipation may constitute the outstanding feature of the case. We have records of 11 such. Illustrative cases are as follows:—

A young man of 28 years contracted an intermittent form of diarrhœa whilst on military service in India from 1919–22. For five years after his return to England from India he had suffered from chronic constipation, flatulence, mental and physical exhaustion, with loss of weight of 14 lb. Tuberculosis of the abdomen had been suspected. The bowels were never open, save by strong aperients. The cysts of *E. histolytica* were found, and were cultured from the stools. Loss of flatulence and increased regularity of the bowels followed a rigorous course of anti-amœbic treatment.

Another good example occurred in a locomotive driver in the Nigerian service, who complained of chronic pain in the left side of the abdomen, and the most obstinate constipation as a sequel of an acute attack of amœbic dysentery. The fæces contained *E. histolytica* cysts. The regularity of the bowels was greatly improved by anti-amœbic treatment.

Flatulence may be a most distressing symptom. Usually it is confined to the ascending colon and the cæcum. It may be obvious to the examining eye. Flatulent distension of the cæcum with retained gas, and which occasions a splash on palpation (well termed the "amœbic splash"), is so frequent as to be almost diagnostic. Flatulence is tabulated as a feature in 37 cases in this series. It may be so obvious and persistent that chronic pancreatitis or chronic intestinal obstruction may be suspected. A typical example is as follows:—

A lady was seen in 1928 whose chief complaint was loss of weight, chronic constipation, and flatulence. She had lost her complexion, the skin was harsh and dry. She presented, in fact, the clinical picture of intestinal toxæmia. The flatulence was confined for the most part to the right iliac fossa in the vicinity of the cæcum. Both sigmoid and cæcum could be easily palpated. The fæces contained *E. histolytica* cysts. Both constipation and flatulence were entirely cured by anti-amœbic treatment.

Dyspepsia.—Acute dyspeptic symptoms are often associated with flatulence. Rarely cases are encountered in which the tenderness and acuteness of pain are referred to the pit of the stomach. These are usually long-standing infections with considerable infiltration of the bowel wall.

One typical example was seen in January, 1927. The pain was referred to the right hypochondrium, especially when lying on that side. The cæcum was infiltrated and thickened, and easily palpable. The fæces contained *E. histolytica* cysts. The dyspeptic symptoms disappeared after efficient anti-amœbic treatment.

Cases Simulating Duodenal Ulcer.—The possibility of intestinal amœbiasis being mistaken for duodenal ulcer is one that rarely arises, but the one particular case in this series was so remarkable that a few details must be given.

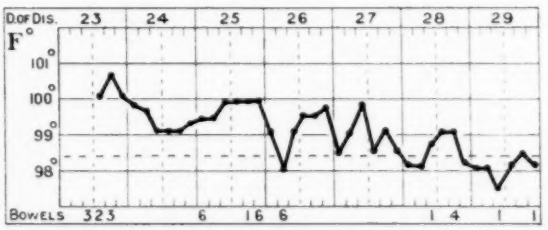
A quartermaster of an Indian liner, aged 45 years, was seen in March, 1927. This man had, three years previously, suffered from liver abscess, for which an operation was performed. After this he appears to have suffered from chronic supra-umbilical pain, flatulence, and dyspepsia. On March 17th, 1927, he was suddenly taken ill with acute abdominal pain, vomited bright blood, and passed a number of black, tarry, melænic stools. Two further bleedings took place within the next ten days, till the condition of the patient became desperate. The anæmia was so profound that blood transfusion had to be resorted to.

On microscopic examination of the melænic fæces one active *E. histolytica* was seen. No improvement followed the usual alkaline and dietetic treatment for duodenal ulcer, but on the other hand emetine injections of gr. 1 for six days effected a most remarkable improvement. This was reinforced later on by a complete course of emetine bismuth iodide and yatren intrarectal injections. A complete cure appeared to have been produced. The improvement to the blood picture, general appearance, and weight of the patient were alike remarkable.

Acute Amœbic Dysentery.—One of us (P. H. M-B.) has recorded[6] a case of acute onset and course with fatal results within 14 days of the onset. Such instances are extremely rare. Amœbic dysentery may, however, produce the most profound cachexia, almost resembling that of malignant disease.

A man of 29 years of age was treated in May, 1928, on his return from Nigeria. The nature of the illness had already been recognised, and he had been treated with a total of grs. 59 of emetine continuously, but the present was the most severe attack he had experienced. He had lost

FIG. 1.



Four-hourly tem erature chart in a case of acute amœbic dysentery, associated with toxic absorption showing the character of the pyrexia.

28 lb. in weight within a month. The diarrhœa averaged 12 blood and mucus stools a day. The patient was obviously cachectic, the sigmoid and cæcum were definitely thickened, while on sigmoidoscopy most extensive and deep ulceration was present. *E. histolytica* were demonstrated in large numbers in scrapings from these ulcers. The response to the combined treatment with emetine-bismuth iodide and yatren was remarkable. He regained 18 lb. within the same number of days. This was one of the worst cases from the clinical aspect we have ever seen.

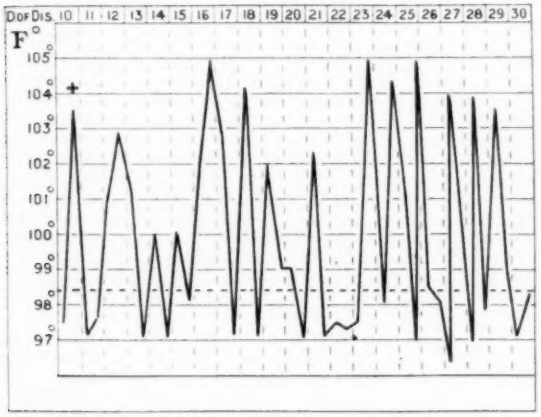
Pyrexia.—The course of a straightforward case of intestinal amœbiasis is usually apyrexial. The absence of anything like a high temperature is usually regarded as a valid point of differentiation between intestinal amœbiasis and bacillary dysentery. It is necessary to point out that this is by no means an invariable rule. In the present series there were no less than 13 cases associated with pyrexia which could not be

accounted for by any other associated infection, or by coincident amœbic hepatitis.

The character of the pyrexia can be gathered from the accompanying temperature chart (Fig. 1); it is probably due to the absorption of septic matter from the bowel wall.

This patient was a ship's engineer, who was admitted to hospital in 1926 with acute amœbic dysentery, passing some 10–20 blood and mucus stools daily. The patient looked ill, with pinched facies and furred tongue. The abdomen was tender, and the cæcum and sigmoid were indurated and palpable. There was no evident enlargement of the liver. The pyrexia rapidly subsided on emetine and emetine-bismuth iodide treatment.

FIG. 2.



Temperature chart in a case of acute amœbic hepatitis with multiple rigors. The cross shows the time at which cysts and pre-cystic forms of *E. histolytica* were found in the fæces.

Pyrexia Resembling Malaria.—The fever may be so acute in onset as to resemble a malarial attack for which it is often mistaken. Of these no less than five cases have been seen where the previous diagnosis founded on the symptoms of the patient indeed had been malaria. We are convinced that these attacks are due to recurrent embolism of the liver by amœbæ derived from the bowel.

A remarkable case of this nature was admitted to hospital in November, 1927. The patient had served for years in India, where he had suffered from dysentery, and had returned in 1923 to England. A latent period of five years elapsed during which he had no symptoms. Then in August, 1927, a series of rigors commenced, resembling closely in the onset and nature that of benign tertian malaria. They were accompanied by the most profuse sweats. Sometimes two rigors occurred within 24 hours. The temperature frequently rose to 105° and 106° F. (Fig. 2). This lasted throughout three months, till the state of the patient became very alarming. The diagnosis was established by the discovery of active *E. histolytica* and its cysts in the fæces, together with the existence of a leucocytosis of 30,000. The amœbæ were subsequently cultured from the fæces. Eventually in December, 1927, on vigorous anti amœbic treatment the patient made a good recovery. Although the liver was enlarged to percussion, and as ascertained by radiographic examination, there was never any acute pain referred to the organ as is usually the case in amœbic hepatitis.

These malaria-like attacks may persist over many years, and then their nature is usually quite unexpected until the stools are microscopically examined.

A fish salesman was seen in July, 1926, with a history extending back over eight years. Originally infected with amœbic dysentery in Syria, in 1918, he had on one occasion only passed blood and mucus in the stools. Ever since that time he had been subject to attacks of otherwise inexplicable diarrhœa. In June, 1926, he commenced to suffer from bouts of fever, with rigors and faintness and tenderness over the liver at the costal margin. The sigmoid flexure and descending colon were distinctly palpable. *E. histolytica* cysts were present in the fæces. There was a leucocytosis of 16,000. Immediate improvement and cessation of febrile attacks took place on anti-amœbic treatment.

Continuous Pyrexia.—Another striking case occurred in a young woman who had returned from India in 1927 and was seen a year later.

She had been taken ill at Marseilles in December, 1928, with recurrent attacks of four bouts resembling closely those of malaria, associated with abdominal dysenteric symptoms. The temperature frequently rose to 104° or to over 105° F. On admission to hospital in January, 1929, she was passing dysenteric motions containing active *E. histolytica*. She had two subacute rigors associated with a leucocytosis of 14,000. The pyrexia speedily resolved, and the condition entirely cleared up on anti-amœbic treatment.

Ulceration of the Rectum Without Involvement of the Rest of the Large Bowel.—The amœbic ulceration of the rectum may be solitary, and the ulcer may be of a large size and give rise to considerable local pain. The ulcer from its site, from its general character, and from the nature of the incessant blood-stained discharge, may closely simulate that of malignant disease.

We have the record of one such case in a man of 37 years of age seen in May, 1928. The condition had persisted for two years. On sigmoidoscopy a large ragged ulcer, 2 cm. in diameter, situated in the rectum, 5 cm. from the anal margin, was discovered. In its indurated character and the ragged nature of the margins of the ulcer it did not resemble an amœbic ulcer; nevertheless, active forms of *E. histolytica* were discovered in the scrapings, and it entirely healed up on vigorous anti-amœbic treatment.

Intestinal Hæmorrhage.—It has long been recognised that severe intestinal hæmorrhage may take place from amœbic ulceration of the colon. It may be so sudden and so profuse that the amœbic nature of the case may not be recognised or even suspected. The difficulty of diagnosis is made doubly severe by the fact that the amœbæ themselves are washed away by the amount of blood and cannot easily be identified by microscopic examination.

A patient was seen in January, 1926. He had suffered intermittently from attacks of amœbic dysentery for over one year, and had been found to be a chronic carrier of *B. typhosus*. Subsequent to an attack of typhoid fever in 1916 on the occasion in question the attack had been ushered in by the most profuse dark melæna, consisting almost entirely of altered blood. He had lost about 2 st. in weight. With great difficulty a few typical *E. histolytica* were found in the melæna, and a permanent recovery followed after specific treatment.

Another good case was seen in September of the same year. This was a lady of 55 years of age, who had contracted the infection in Chile early in 1926. The illness had begun suddenly with a rigor and high temperature, with pain in the right shoulder and the right arm. The diagnosis eventually turned out to be that of a hepatic abscess which had ruptured into the right lung, producing the most profuse hæmoptysis. At the same time she passed large black tarry stools in which, on microscopic examination, an active *E. histolytica* was recognised. A complete course followed intensive anti-amœbic treatment.

Painful Spasmodic Contraction of Sigmoid Colon.—Spasmodic contractions of the bowel occur in amœbic dysentery, especially in long-standing cases, and in those in whom constipation is an outstanding feature. This spasmodic contraction may dominate every other symptom of intestinal amœbiasis.

A locomotive driver from Nigeria was seen in February, 1925. He complained of chronic constipation and pain over the descending colon and sigmoid, which, though usually of a dull aching character, was punctuated by acute exacerbation. The spasmodically contracted bowel could be easily palpated. Numerous *E. histolytica* cysts were present in the fæces. Vigorous anti-amœbic treatment entirely cleared up the condition.

Hæmorrhoids.—External piles are a very frequent concomitant of intestinal amœbiasis. Almost every case of long standing shows evidences of external piles. They are probably occasioned by the straining at stool which is a feature of this disease. As a rule, we do not advocate any active interference in these cases, as the piles recede and almost disappear when the underlying cause has been adequately dealt with.

Prolapse of Rectum.—As in the case of hæmorrhoids, so may prolapse of rectum be brought about by constant straining at stool.

We have seen one such case in a medical man, 37 years of age, who was seen in October, 1927. He gave a clear history of amœbic dysentery contracted in Mesopotamia in 1922. He had suffered from a great deal of diarrhœa with a little tenesmus, but the rectal prolapse had become gradually more pronounced. Large numbers of *E. histolytica* were present in the fæces, and a sigmoidoscopic examination revealed large numbers of characteristic ulcers. Without any additional aids, a complete and permanent retraction of the prolapsus recti took place on specific treatment. The patient has remained in good health, and has undertaken a large clinical practice ever since.

Sequelæ.—Stricture of the bowel, not any actual interference with the passage of fæces as the result of amœbic ulceration, has not been observed.

Dilatation of Colon (Megacolon).—Two instances of this condition, apparently the direct result of chronic amœbic infection of the large bowel, have come under notice. In both instances the gradual onset of the condition, coming on two to three years after the cause of amœbic infection, has been observed.

The most striking instance has been watched since 1920. This man contracted amœbic dysentery whilst serving in Mesopotamia in 1917. He had relapses of dysentery in 1919, for which he was treated with six courses of emetine-bismuth iodide, and another more severe one in September, 1920, for which he was treated by a more vigorous course of emetine-bismuth iodide in the Hospital for Tropical Diseases. He appears to have been entirely cured of his amœbic infection. From 1925–27 he was under continuous observation with enormous dilatation of the colon, especially of the transverse portion, resulting in the characteristic Hirschspring's disease. The abdomen itself was greatly distended, especially in the lower quadrant, where the constant meteorism occasioned the most acute discomfort. The condition revealed by barium enema was one of gross distension and sacculation of the whole colon.

The second case in a ship's officer was similar in its main features, and in both an intimate and direct association with chronic intestinal amœbiasis could be traced.

Sprue Secondary to Intestinal Amœbiasis.

We have records of two cases in which sprue-like symptoms supervened upon an amœbic infection.

The first was a young officer who contracted amœbic dysentery in Mesopotamia, whence he returned rather acutely ill with dysenteric symptoms and the passage of active *E. histolytica* in the fæces. During his course of treatment he developed a typical acute hepatitis. All dysenteric symptoms rapidly subsided on vigorous anti-amœbic treatment, but almost immediately developed sprue-like symptoms with stomatitis, aphthous ulceration of the mouth, and the passage of large frothy sprue-like stools. The sprue state lasted for just one month and yielded to dietetic treatment. This was in April and May, 1920, since when he has remained in good health.

In the second case it was difficult to determine whether the amœbic infection antedated the sprue or not, but when the patient, who was 55 years of age, and who hailed from Bangalore, came under treatment in August, 1927, he had lost 76 lb. (5 st. 6 lb.) of his body-weight. In addition to this emaciation there was shrinkage of liver, dullness, anæmia, and the stomatitis of sprue. The fæces were large, pasty, and frothy, but also contained blood and mucus and active *E. histolytica*. Treated with the combination of emetine-bismuth iodide and rectal injections of yatren he made a very good recovery, and on returning to India nine months later he weighed 14 st., or an increase of 104 lb. of body-weight.

We think that there is a very close connexion between amœbic dysentery and sprue. The frequency with which the latter supervenes upon the former is more than a mere coincidence. Here we have records of two cases in which these diseases merged imperceptibly into one another, and it almost suggests that in certain cases sprue supervenes as a sequel of intestinal amœbiasis.

Localities in which Intestinal Amœbiasis was Contracted.

The cases quoted in this series hailed from nearly all over the world. From India, China, Ceylon, East Indies, Aden, Palestine, Mesopotamia, Salonika, Gallipoli, Egypt and the Sudan, East, West, and South Africa, New South Wales, the Mediterranean area, Venezuela, West Indies, Cape Verd, and Canary Islands. There were three records of indigenous amœbic dysentery, contracted in 1917–19 on active service in France, and one in Germany contracted whilst a prisoner of war in 1918. There is also the record of an indigenous infection contracted in London.

The patient, a stevedore, aged 60, was seen in the Albert Dock Hospital in 1928. He has never left this country, but for 40 years had worked upon ships from Calcutta and Bombay, and it is from this source probably that he contracted the infection, presumably from association with lascar sailors. He had been ill for over two years with very evident signs of dysentery, and had been treated for colitis and for possible lead poisoning (lead colitis). Unfortunately he broke his leg in October, 1928, and had to be admitted to hospital for treatment when the true nature of the "colitis" was recognised by the discovery of active *E. histolytica* in the blood and mucus stools. The response to anti-amœbic treatment was as instantaneous as it was remarkable.

Associated Diseases.

The intimate connexion between amœbic dysentery and hepatic abscess is universally recognised—in fact they are but different manifestations of the same infection—but curiously they are seldom observed at the same time in the same individual. This association was noted five times in 150 cases. In three the liver abscess had antedated the present attack of amœbic dysentery, and in two only, both severe cases, was a hepatic abscess present at the same time as the patient was suffering from intestinal amœbiasis. Amœbic dysentery coexisted with malaria also on two occasions and with kala-azar once. The peculiar relationship to sprue has already been noted.

Conclusion.

The connexion between intestinal amœbiasis and the signs and symptoms is difficult to determine precisely. It depends possibly on the nature and extent of the intestinal ulceration whether the pain and discomfort are referred to one portion of the bowel or the other. Why the same infection should produce active diarrhœa in one person, and chronic constipation and flatulency in a second, cannot at present be determined. It probably depends upon the amount of mucous membrane destroyed by the amœbic infection, or the resistance of the patient to this particular infection. The diversity in the nature and severity of the symptoms produced render intestinal amœbiasis one of the most protean of all protozoal infections.

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EAST HULL MATERNITY HOSPITAL AND CLINIC.—A new Municipal Maternity Home and Infants' Hospital has recently been opened at Hull. The institution was founded by private munificence in 1912, but by 1915 the work had so greatly expanded that it was taken over by the corporation. The new premises, which already belonged to the city, have been adapted to provide 49 maternity beds, 16 cots for infants suffering from dietetic diseases, 8 beds for nursing beds, and 10 isolation beds. The hospital is a training school for midwives. In 1928 there was one death among the patients attended by a municipal midwife, and no death among the 645 women confined at the maternity home—one maternal death for 1085 confinements. On the other hand, there were 24 maternal deaths from the 5018 confinements which take place elsewhere in the city, or one death for every 209 confinements. On the same occasion there was opened the East Hull Clinic, which brings together five different departments scattered about the district. It is claimed that the Clinic "is, in many ways, unique," and it is pointed out that, under the special arrangements of the Hull Corporation, all children, whether under or over 5 years of age, can be treated. It is officially described as "an endeavour to provide a complete Public Medical Centre for East Hull."

THE INFECTIVITY OF ERYTHEMA NODOSUM.

By J. O. SYMES, M.D. Lond.,
CONSULTING PHYSICIAN TO THE BRISTOL GENERAL HOSPITAL.

THE majority of cases of erythema nodosum, febrile and non-febrile, occur sporadically, and the closest investigation fails to reveal a possible source of infection. Then one meets two or more cases so closely associated one with the other that it is difficult to disregard the possibility of infection. Two illustrations of this have been brought to my notice recently by medical correspondents. For the following I am indebted to Dr. D. J. Thomas, of Melbourne :—

A woman, aged 21, had a typical attack of erythema nodosum, subsiding quickly. A fortnight later her brother, aged 26, developed a sharp attack. Three weeks later her sister, aged 18, had tonsillitis and erythema nodosum. She had a congenital aortic defect, and her attack of erythema nodosum passed into acute bacterial endocarditis, which proved fatal about three months later.

The second instance was communicated to me by Dr. Victoria Tryon of Clifton :—

Two female domestic servants, neither of whom had suffered from any previous illness, shared a common bedroom. One of them, aged 20, developed the rash of erythema nodosum on March 19th, 1929. There were no constitutional symptoms and the attack was over in nine days. Her fellow servant, aged 22, complained of stiffness in the joints on May 20th, and there was then some teno-synovitis of both patellar tendons. On June 3rd the rash of erythema nodosum appeared. The attack was a slight one, unaccompanied by constitutional symptoms, and she was well in eight days.

It would be easy to multiply such cases, both from one's own experience and from published reports. Even more common is the simultaneous occurrence of erythema nodosum in two or three members of the same family. Whilst the probability is that they have all been infected from a common source, one cannot conclusively refute the explanation that is so often advanced—namely, that the disease has been caused by some food poisoning or some defect of hygiene which has been common to all the sufferers.

In 1920 I saw two sisters, one of whom developed erythema nodosum on March 20th and the other on March 22nd. One of these, a medical student, returned to her work on March 27th, long before the nodes had disappeared, and subsequently a nurse in the ward in which she was working developed erythema nodosum on April 8th, and a night nurse on May 2nd.

Small outbreaks of the disease in schools or institutions are not uncommon. Langford Symes saw 12 cases in a home of 100 young girls between May 14th and June 14th, 1907, and Arvid Wallgren[1] in 1927 reported an outbreak of 18 cases amongst a class of 34 girls. Wallgren believes erythema nodosum to be a form of tuberculosis, but the facts as stated are much more suggestive of an infective fever, for the girls were all between the age of 10 and 12 years; the cases occurred in batches as if one group had infected the next; and they occurred in the months of March, April, and May, when erythema nodosum is most prevalent. Larger outbreaks, attacking whole communities, are not infrequent. Wiborg saw 30 cases between November, 1921, and August, 1922, amongst an isolated community of 816 people at Bangsund. Dr. R. E. Roberts, medical officer of health of the Mynyddislyn Urban District Council, saw 50 cases during a period of five weeks in August and September, 1920.

Incubation Period.

It is very difficult to fix the incubation period of erythema nodosum. The notes of published cases are of little value, for as a rule the appearance of the rash is regarded as the beginning of the illness, regardless of the fact that there has frequently been a febrile period of from 7 to 14 days before the exanthem appeared. It seems, however, that the incubation period may be a very brief one. For instance, a case is reported in which a child who was suffering from erythema nodosum was admitted to a hospital ward, and nine days later two children in the ward developed the disease. There had been no previous cases of erythema nodosum in the institution. Ledoux relates the history of four girls who suffered from the disease. The first was attacked in December, the second followed nine days later, the third 12 days after the second, and the fourth 15 days after the third. My own experience would lead me to give an incubation period of about 14 days. A. A. Lendon estimates it at about 11 days. Whilst it is certain that the incubation may be brief, it is obvious that the interval between two associated cases is usually a long one, extending into weeks and sometimes months. For instance, in the case of the two domestic servants which I have already quoted the interval was nine weeks, and similarly, some years ago, I discharged a boy convalescent from erythema nodosum from the Bristol General Hospital on July 12th, and admitted his sister suffering from the same disease on August 31st. There are two possible explanations of this long interval between cases. The infectivity of erythema nodosum is very low and the ordinary healthy subject is able to withstand it. If, however, the resisting power be temporarily lowered from any cause, then the germ gets the upper hand, and the disease is developed. In this connexion it is noteworthy that erythema nodosum is very frequently preceded by a period of ill-health, or follows after some acute or chronic infection. Its close association with tuberculosis is possibly only an evidence of the debilitating result of this disease. Another possible explanation is that the infective organism survives for a long period, and the convalescent becomes a "carrier." In this way the infection would be comparable to that of diphtheria. In support of this view is the fact that relapses are not uncommon, and sometimes patients reinfect themselves over and over again. Lendon reported the case of a woman who, after a month of prodromal illness, developed the rash of erythema nodosum on Jan. 5th, 1899. Fresh crops of nodes continued to appear until the following August. The patient went to South Africa, and subsequently, in January, 1900, wrote saying she thought that she had seen the end of the illness, as the last traces had disappeared just two weeks before the date of writing.

Characteristics of the Infection.

A striking instance of how infection may persist in erythema nodosum is provided by the case of Mrs. A., whose history I detailed in my recently published monograph on this disease. This lady had her first attack at 18 years of age, and subsequent attacks when 21, 24, 27, 30, 32, and 37. By the courtesy of her medical attendant, Dr. Winifred Nott, I was able to see Mrs. A. in two subsequent attacks (eighth and ninth), one in April and the other in July, 1929. She was then 42 years of age. Although the acute attacks were several years apart, Mrs. A. stated that she was seldom free from nodules for more than a few weeks at a time. Any depressing circumstance or failure in general good health brought back a few spots. Four of the acute attacks occurred during pregnancy. Some authors have described such recurrent attacks or relapses as *chronic erythema nodosum*.

Another interesting feature in the incidence of erythema nodosum is the predilection it shows for certain families. Over and over again one sees two or three members of a family getting attacks of erythema nodosum. The attacks are many years apart, and often occur in widely separated members of the same family, so that one can exclude the possibility of infection by fomites or of one member being a carrier. Woringer calls such instances

[1] See THE LANCET, 1927, ii., 1036.

familial erythema nodosum, and maintains that they share a similar familial constitution which renders them peculiarly liable to this infection. Of such the following is an example:—

Mrs. N. Erythema nodosum in 1886; eldest daughter died during attack of erythema nodosum and endocarditis, 1900; fourth daughter had erythema nodosum in India in 1925, and a mild attack in England, 1927; fifth daughter had an attack in 1920, and second and third attacks in Egypt 1921 and 1922; the sixth daughter had attacks in 1915, 1920, and 1922.

Females are more than three times as prone to develop the disease as are males. There is no other infectious disease which shows this peculiar sex incidence.

The nature of the infective agent in erythema nodosum is at present unknown. On the continent the view is widely held that this disease is a modified form of tuberculosis, but in this country and in America it is increasingly regarded as a streptococcal infection. Rosenow claimed to have isolated a diphtheroid organism which, in some stages, assumed a streptococcal form, and which reproduced the disease in animals, but his work has never been confirmed. Whatever the organism may be, its activity in all European countries is greatest in March and April, and this groups it with such diseases as pneumonia, streptococcus infection, tuberculosis, and encephalitis lethargica, for which the winter months, by the absence of sunlight, prepare the soil. Infection takes place through the tonsils, and it is probable that it is in these organs and in the nasopharynx that it lies dormant for weeks or months.

THE USE OF BISMUTH IN THE TREATMENT OF CONGENITAL SYPHILIS.

By T. M. LING, B.M. Oxf.,

JOHN AND TEMPLE RESEARCH FELLOW IN DISEASES OF CHILDREN, ST. THOMAS'S HOSPITAL.

SINCE its introduction in the treatment of syphilis by Sazerac and Levaditi in 1921,[1] bismuth has been accepted as an antisyphilitic remedy of undoubted value. Laboratory experiments and clinical trial have testified to its efficacy, and many French writers regard it as therapeutically superior to mercury. It is only natural that a drug which has proved of such value in acquired syphilis should be employed in congenital syphilis, a variety of the disease that is admittedly very refractory to treatment.

Among the first to report his experience with bismuth in congenital syphilis was Müller,[2] who treated six cases in 1922, and secured a good symptomatic response without toxic effects. In the following year Cajal and Spierer[3] reported the treatment of eight cases with a bismuth tartrate preparation, and stated that its therapeutic action on active manifestations was more rapid than that of mercury and as rapid as that of the arsenical preparations. Untoward symptoms were not observed. A suspension of bismuth salts in oil was employed by Torok.[4] In his experience bismuth proved to be a more satisfactory drug than either mercury or arsenic, owing to its ease of administration and low toxicity in therapeutic doses. Several other continental writers have expressed similar approval, while dissenting opinions as to its value are offered by Pinard[5] and Frank,[6] the former asserting that bismuth is not well borne by children, and that it often causes anæmia, emaciation, and lassitude; while Frank had one death, apparently consequent upon bismuth therapy. Wright[7] has reported very good results, and was able to render 47 per cent. of his Wassermann-fast cases serologically negative, although prolonged treatment with arsenic and mercury had been previously carried out without effect.

Mode of Administration.

In my investigations "bisoxyl," a suspension in water of bismuth oxychloride and chloretone, has been used throughout, the injections being given deeply into the subcutaneous tissue of the thigh at weekly intervals, the dose varying with the age of the child. As a rule the initial dose was 0·1 g., gradually increased to 0·2 g. if no signs of intolerance developed; this corresponds to 0·01 and 0·02 g. of the bismuth salt itself. The injections are only accompanied by momentary pain, unlike those of intramuscular arsenic, after which some degree of local swelling and tenderness usually persists for two or three days. This fact was constantly commented on and approved of by the mothers, some of whom sanctioned treatment with bismuth, although further arsenical treatment had been refused. On this account it is very much easier to ensure regular attendance with bismuth therapy, a very important point where the duration of treatment may be a matter of years. The site of injection was always well massaged after the administration of the drug, and in no case has any localised fibrosis occurred.

Intolerance to Bismuth.

As a general rule the symptoms of bismuth poisoning are similar to those of mercurial poisoning, except that recovery from the toxic effects is considered to be more rapid in the former. Anwyl-Davies[8] regards loss of appetite, accompanied in some cases by vague feelings of indigestion and headache, as the earliest manifestations of bismuth intolerance. Loss of weight is another early sign; in this series the patients were weighed regularly every fortnight. The weight remained absolutely stationary in four, while one of the children, who developed albuminuria, lost weight quite markedly so that the treatment was stopped. A blue line on the gums may be regarded as a most valuable sign, as it is a guide to the amount of bismuth that can be tolerated, and is thus a good index of the appropriate dosage. At first a grey line forms round the edge of the gums, and this gradually turns to a bluish colour. Even when the line becomes definitely blue, provided that there is no stomatitis, the administration of bismuth need not be stopped, but the dosage should be decreased. Colonel Harrison[9] has pointed out that the blue line along the gum margin is more frequent when the soluble bismuth preparations are used, and that in all cases treatment should be stopped as soon as stomatitis is observed.

Clinical experience of the effect of bismuth on the kidneys bears out the conclusions that Brown, Saleeby, and Schanberg[10] reached experimentally on rabbits—namely, that the toxicity of bismuth is relatively low. It is presumably on account of this discrepancy between the therapeutic and the toxic dose that patients who develop albuminuria do not continue to show it for any length of time after the treatment is ended. This is well shown in Cases 14 and 15. Within six weeks of the cessation of treatment the urine was free from albumin, and there was apparently no impairment of kidney function as judged by renal efficiency tests. It is of interest to note that both these patients had received antisyphilitic treatment for over three years before commencing the bismuth; as they were the only cases to develop albuminuria it is possible that the previous prolonged treatment with arsenic and mercury had to some extent damaged the kidneys and rendered them more susceptible to the subsequent bismuth.

Indications for Bismuth Therapy.

The most refractory cases of congenital syphilis from the serological point of view are, as a rule, those that first come under observation in later childhood, and are included under the term "lues tarda." Many of these cases persist with positive Wassermann reactions long after the outstanding physical manifestations have healed, and despite prolonged antisyphilitic treatment. Glynn, Roberts, and Bigland, in their Medical Research Council Report,[11] suggest

very strongly that strains of *Spirochæta pallida* resistant to mercury may be produced by the prolonged administration of this drug in submaximal doses. Analogous results from arsenical treatment have been recorded by Klauder,[12] who has shown that it is possible to produce arsenic-resistant strains of *S. pallida* in rabbits by giving them small subcurative doses of arsenobenzol and inoculating the strain through several animals. The cases here recorded come under a combination of these two categories, as before their bismuth treatment they had all received repeated courses of intramuscular arsenic combined with mercury by the mouth. The cases are shown in the accompanying table, the intensity of the Wassermann reaction being recorded by the number of "pluses" in each case:—

Case.	Age.*	W.R.*	No. of A. injections.	Time under M. and A. tr.	W.R. after A. tr.†	Age at commencement of bismuth therapy.	Total number of bismuth injections.	W.R. after bismuth.†
1	8 y.	3	12	6 m.	1	8	6	—
2	7 y.	4	24	18 m.	2	8	12	2
3	8 y.	4	24	12 m.	3	9	12	1
4	6 y.	4	34	3 y.	1	9	6	—
5	10 y.	4	36	2 y.	4	12	6	4
6	3 w.	2	36	3 y.	4	3	12	
7	13 y.	2	12	6 m.	2	13	12	±
8	4 y.	3	12	6 m.	3	4	12	±
9	9 y.	4	6	3 m.	4	9	12	4
10	9 w.	3	6	2 m.	3	1	12	—
11	3 m.	3	18	2 y.	2	2	12	±
12	2 y.	2	12	6 m.	2	3	6	—
13	8 y.	4	24	2 y.	3	10	12	2
14	10 y.	4	32	3 y.	2	13	12	—
15	10 y.	3	36	3 y.	3	13	10	2

* On first attendance. M. and A. tr. = mercury and arsenical treatment. † Number of pluses. y. = years; m. = months; w. = weeks.

Comments.—Case 5. Attendance lapsed. 9. Irregular attendance. 14. Albuminuria at end of second course. 15. Albuminuria treatment stopped.

Conclusions.

Although it is impossible in any one centre to secure a large number of suitable cases, these results tend to show that it is possible to render serologically negative a certain proportion of apparently Wassermann-fast congenital syphilitics by means of bismuth, and that its use is not accompanied by any untoward symptoms, apart from the occasional occurrence of temporary albuminuria. It is suggested that these results are due to the fact that the *S. pallida* has become resistant to arsenic and mercury after prolonged treatment

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HOSPITALS AND MOTOR ACCIDENTS.—The Manchester and Salford Medical Charities Fund suggests that hospitals which treat motor accident cases should be brought in as beneficiaries in any scheme of compulsory insurance of motorists against third-party risks, and the governing body of the fund has passed unanimously a resolution urging this course upon the Government.—Lieut.-Colonel W. L. Kirby, chairman of York County Hospital, advocates the addition to all driving licences of one shilling to cover the cost of hospital charges caused by road accidents.

Clinical and Laboratory Notes.

AN UNUSUAL VAGINAL INFECTION IN A YOUNG MARRIED WOMAN.

BY E. WORDLEY, M.D. CAMB., M.R.C.P. LOND.,

PATHOLOGIST TO THE SOUTH DEVON AND EAST CORNWALL HOSPITAL, PLYMOUTH.

IN an address reported in THE LANCET last week (p. 981) Colonel L. W. Harrison dealt with various pitfalls in the diagnosis of venereal disease, and stressed the importance of a very complete examination before giving a definite opinion on the nature of any suspected venereal infection. He quoted an illustrative case where, because a newly married woman developed a Bartholinian abscess shortly after marriage, a diagnosis of gonorrhœa was made—erroneously as it turned out after further examination—and caused very great distress to the parties concerned. A case has recently come to my notice where a similar mistake might easily have been made and a marriage wrecked. It proved a useful lesson against jumping to conclusions.

A young woman, aged 20, made a runaway marriage with a man a good deal older than herself, and against the wishes of her parents. Eight days after marriage and during the honeymoon she noted a profuse vaginal discharge and much irritation around the vulva. Thinking her husband had given her some venereal infection she came home to her parents. She was at once seen by her doctor who found all the signs suggesting an acute gonorrhœa. The girl's parents told him that if she had a gonorrhœal infection it was decided to institute divorce proceedings.

Smears from urethra and cervix were taken and sent to me for examination. Numerous pus cells were present and numerous Gram-negative diplococci both extra and intracellular were found, exactly resembling the gonococcus. I am certain that if similar slides had been sent up from a venereal diseases department with a diagnosis of gonorrhœa a return of "gonococci present" would have been made unhesitatingly. However, since I knew the details of this particular case, I stated that organisms resembling the gonococcus were present, and refused to commit myself more definitely. I said that if any question arose of giving evidence in any divorce proceedings I should have to examine the patient myself and take cultures if I was wanted to give any exact evidence. Accordingly, I made a personal examination of the patient. She had a thick yellow purulent vaginal discharge, the inguinal glands were enlarged, she was acutely tender on examination, and in short, presented all the symptoms of acute gonorrhœa. Films taken again showed numerous pus cells and Gram-negative intracellular diplococci exactly resembling the gonococcus. However, cultures on blood-agar yielded no colonies resembling the gonococcus but a pure growth of fairly large whitish rather opaque colonies. On staining these they proved to be Gram-negative diplococci of the exact size and shape of the gonococcus. But on first culture they grew luxuriantly on plain agar both at 37° C. and at room temperature. Maltose and dextrose were acidified but not lactose. Apart from the sugar reactions, the fact that abundant growth was obtained on plain agar at room temperature must completely rule out the possibility of the organism being the gonococcus.

The husband next came to see me stating positively that he had never had gonorrhœa and had now no urethral discharge nor anything to suggest an infection of the genito-urinary tract. I made a careful examination of his urethra, prostate, and urine. No signs of a urethral discharge were present. No pus cells or organisms were found in the urethra, prostatic secretion, or urine. Cultures from all three were sterile. I gave as my opinion that his wife was certainly not suffering from gonorrhœa, which opinion naturally gave the greatest satisfaction to both of them. In passing it may be remarked that the girl's parents had been chiefly responsible in emphasising the seriousness of her infection and the enormity of her husband.

The infection cleared up rapidly with simple antiseptic douches.

It appears certain that there was no possibility of the wife contracting her infection from anyone else, since both assured me most positively that until she went home to her parents they were hardly out of each other's sight. It is certain that the husband

had no genito-urinary infection of any sort, so one must assume that the wife was infected with this organism, somewhat resembling the *Micrococcus catarrhalis* or an aberrant staphylococcus, as a result of trauma incidental to the early days of the honeymoon. She told me that she had had a great deal of pain following the first coitus. Her mother, it may be added, was positive that the girl had no vaginal discharge of any sort before marriage, and the daughter said so herself. Yet here was a young woman who, shortly after marriage, presented all the symptoms of acute gonorrhœa. Slides showed pus cells and an organism identical morphologically in all respects with the gonococcus. A report of "gonococci present" would have been made without hesitation on these findings combined with the history and appearance of the patient. Unless divorce proceedings had been contemplated it is quite possible that I should not have advised any further examinations to be made. If so a very serious error in diagnosis would have been committed with disastrous results to the future happiness of a young married couple.

The bare possibility that the infection was not venereal was present in my mind when I first saw the patient, for many years ago, when I was working in Prof. L. S. Dudgeon's laboratory, he described to me a similar case which he had seen in his own practice. Such occurrences show, I think, the importance of a very complete and thorough examination of both husband and wife when there is the slightest element of doubt about a venereal infection.

NOTE ON AN ANAEROBIC STREPTOTHRIX OCCURRING IN SPUTA IN PULMONARY DISEASES.

By E. T. Thompson,

BACTERIOLOGICAL ASSISTANT, PICKETT-THOMSON RESEARCH LABORATORY, ST. PAUL'S HOSPITAL, LONDON.

THROUGH the coöperation of Dr. Mackenzie Douglas and Dr. Graham Willmore I have been enabled to investigate an anaerobe occurring in the sputum of cases suffering from tuberculosis, chronic bronchitis, bronchiectasis, and asthma which somewhat resembles the organism described by myself in a record of some symbiotic phenomena, with a note by Dr. R. O'Brien, published in THE LANCET (1920, ii., 186).

In the course of that work *Bacillus tuberculosis* cultures were infected with *B. proteus vulgaris*, the common proteolytic organism of the intestines. Briefly stated, the result was that after seven days' incubation at 37° C. *B. proteus* died out, but a Gram-positive non-acid-fast organism resembling the acne bacillus was found, and this organism could only be cultivated under anaerobic conditions. Further, a similar organism was isolated, when, instead of *B. tuberculosis*, a streptothrix was employed. The interest of this latter observation is increased by the fact that when the aerobic streptothrix of actinomycosis was employed in the experiment, the resulting anaerobe closely resembled the *Cohnistreptothrix israeli*, the common cause of actinomycosis in man in Europe. The organism did not resemble any of those commonly found in accidental contaminations, and every attempt was made to prevent the entry of adventitious bacteria into the mixtures under experiment.

Since the publication of the above results approximately 2000 sputa from 1000 patients have been examined at the Ministry of Pensions Hospital, Orpington, and Queen's Hospital, Sidcup. Of this number 118 cases were actively tuberculous with positive sputa. From these cases 172 sputa were treated and examined, and the anaerobic streptothrix was demonstrated in every case. In the other sputa the anaerobe was shown to be present in 65 per cent.

Method of Isolation.

The method employed in the isolation of this organism is as follows:—

About 0·5 c.cm. of sputum is introduced into a test-tube containing 10 per cent. glycerin in 1 per cent. peptone water 3 to 4 inches deep which has been previously autoclaved at 120° C. for 30 minutes. The mixture is then incubated at 37° C. It is not necessary to incubate under the usual anaerobic conditions, as the concomitant organisms produce a state of anaerobiosis which enables the anaerobe to grow when present.

Its appearance can generally be demonstrated in four to seven days, at the end of which time it usually reaches its maximum growth.[1] In Gram-stained specimens prepared from the sediment it will be easily recognised when present, as it is generally the only Gram-positive bacillus which develops, the other organisms present being mainly cocci. It resembles the tubercle and diphtheria bacilli, and sometimes shows true branching.

The removal of a portion of the sediment for the preparation of specimens or making cultures presents no difficulty if a finely drawn capillary tube with the upper end sealed is inserted into the sediment. When the capillary tube reaches the bottom of the sediment the sealed end is broken off, when some of the sediment will enter by capillary attraction. The tube is resealed before withdrawal to prevent any of the supernatant fluid entering. If on examination the growth of anaeromyces is considered sufficient for isolation, the remainder of the material is expressed into about 5 c.cm. of sterile water, saline, or broth. From this suspension shake cultures are made in 4 per cent. glucose agar 3 to 4 inches deep into a series of three tubes by inoculating from one tube to the other.

Microphotograph of organism from glucose agar culture. (× 1700.)

At the end of seven days small irregular opaque colonies will be seen in the depth of the medium resembling those of the acne bacillus. To examine the colonies and make subcultures a cut is made round the lower end of the test-tube with a glazier's diamond, and the cut is touched with a red-hot point of glass which will cause a clean crack round the tube, the bottom of which can now be easily removed. The column of glucose agar is blown into a sterile Petri dish. Isolated colonies can now be pricked with a straight platinum wire, for examination and making stab culture into 4 per cent. glucose agar. In three to five days growth will be noted, starting some distance below the surface of the medium. Specimens prepared from the pure cultures are Gram-positive but not acid-fast, and generally show many branching forms (see figure).

An Antiserum.

Marked deviation of complement with the sera of patients suffering from pulmonary complaints have been obtained by using a suspension of this anaerobe as an antigen. Although the organism is non-pathogenic to the lower animals a potent antiserum can be obtained by injecting it into rabbits, the serum having a high degree of agglutinability and complement fixation with its homologous antigen and *B. tuberculosis*. A few experiments have been carried out with this serum with a view to protecting guinea-pigs against infection by *B. tuberculosis*, and the results have been encouraging. Vaccines prepared from this organism have been used in cases of

[1] Castellani, A., Douglas M., and Thompson, E. T.: Jour. Trop. Med. and Hyg., June, 1921, xxiv., 149, and July 15th, 1925, xxviii., 257.

tuberculosis, chronic bronchitis, and bronchiectasis sometimes associated with asthma, with favourable results. Some cases have cleared up under this treatment which have proved resistant to all other methods.

In conclusion, I tender my thanks to Dr. Douglas and Dr. Willmore for the practical interest they have taken in this subject, and to Dr. David Thomson for the microphotograph.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF SURGERY.

AT the meeting of this Section on Nov. 6th, with Sir HOLBURT WARING, the President, in the chair, a discussion was held on the

SURGERY OF THE SPINAL CORD.

Mr. HUGH CAIRNS said that usually the earliest symptom of a spinal tumour was pain in the back or along the distribution of the spinal nerves. It was described by patients as neuralgic, burning or tingling, or possibly it was only a sensation of tightness around the trunk or limbs. Often it was aggravated by exercise, coughing, bending, straining at stool, or even by lying down, so that some patients preferred to sleep seated in a chair. They would often admit that their extremities were cold, or that one foot was colder than the other, and the pain did not yield to drugs or measures which cured other pains. In the early stages careful examination would often disclose one or more signs of an early and incomplete Brown-Séquard syndrome. Stiffness of one leg, numbness of one foot, a creeping sensation about the ankles, or slight urgency of micturition during excitement or during a particularly bad attack of pain were some of the other symptoms that occurred before weakness set in. Often diagnosis was possible on careful clinical examination alone, but lumbar puncture provided confirmation. Usually there was blockage of the subarachnoid space, and Queckenstedt's test was valuable for its recognition. Positive results of the test could be seen even when there was no change of colour in the cerebro-spinal fluid. Mr. Cairns thought that the value of this test after operations had not hitherto been realised, and it was too often omitted during the preliminary investigation of a case. Sometimes the subarachnoid space was partly blocked and there was a delayed rise of pressure in the cerebro-spinal fluid, as shown by the manometer.

Surgeons, of course, were especially concerned with the position of spinal tumours lest they should overlook an easily removable tumour by exploring at the wrong level. In one of his cases the upper level of the sensory loss was at the eleventh thoracic dermatoma, but further investigation after lumbar puncture showed a disturbance of sensation up to the level of the fifth, and the tumour was found at the sixth thoracic segment of the cord. This showed the importance of repeating the neurological examination after doing lumbar puncture. The upper level of the sensory loss should be tested not only by light touch, prick, heat and cold, but also by tuning-fork and by investigation of the patient's ability to appreciate numbers written on the skin. In compression the posterior columns were often affected more intensely, and at an earlier stage, than the lateral columns. Gordon Holmes had pointed out that careful observation of the movements of the intercostal and abdominal muscles would sometimes show the upper limit of the paralysis, while the tendon reflexes must be studied to determine the level of the lesion at the cervical and the lumbar enlargements. Mr. Cairns thought lipiodol should be used not to diagnose the presence of a tumour but rather to ascertain the exact level of a tumour which had been detected by clinical methods. It should be used, moreover, only when preparations for operation had been made. The lipiodol test was especially valuable in cases with two or more tumours of the cord. He was surprised that multiple tumours of the cord and its roots were not more often seen.

Little was known about disturbance of spinal conduction, went on Mr. Cairns, but compression of the cord by tumour should be distinguished from destruction of the cord by injury. In rare cases compression caused severe degeneration, precluding the possibility of restoring function, even after the tumour had been removed. As a rule, however, remarkably little degeneration of the cord had been found in patients who had shown severe paresis in life. The process of recovery varied remarkably in different cases. Sometimes it was evident in the paralysed limb within a few hours of removal of the tumour and soon became complete; in other cases it was delayed for a few weeks, but might nevertheless be equally complete. In other cases, again, it did not begin until a year or more after the tumour was removed and was then slowly progressive. On visiting Breslau last summer he found that Prof. Foerster had been operating on apparently hopeless cases of spinal compression, and had kept some of them in hospital for many years. One was a case of paraplegia in flexion, which has been treated for six years as disseminated sclerosis. Foerster removed a tumour from the first thoracic nerve root, and during the following 15 months the limb was straightened under anæsthetics and eventually the patient walked well. No case of spinal tumour was hopeless, and every effort should be made to get adequate institutional and orthopædic treatment during recovery.

Meningitis serosa circumscripta showed blockage of the subarachnoid space. If the adhesions could be broken up at operation the patient recovered in spite of the fact that in the few cases that had died post-mortem examination showed gliosis and scattered degeneration of the cord. The presence of adhesions and blockage of the subarachnoid space interfered with spinal conduction. Mr. Cairns found that satisfactory results from operation for spinal tumours could only be got if obstruction to the circulation of the spinal fluid was relieved. It was well to employ Queckenstedt's test after operation, especially in cases which were not recovering at the expected rate, for the subarachnoid space might still be blocked after removal of the tumour; there might be some adhesions at the site of the operation, or the tumour might have been incompletely removed, or another tumour might be present elsewhere in the spinal canal.

Mr. Cairns concluded by referring to the question of operative injury. The cord, he pointed out, was a very delicate structure, which should be respected even more than the brain; sometimes it came in for too much manipulation and its conductivity was thereby lowered. If due gentleness was observed in handling it at operation it should not show much depression afterwards.

The Queckenstedt Test and Lipiodol.

Mr. GEOFFREY JEFFERSON said that the principles of operation for cord tumours were in general those of the treatment of spinal compression as a whole. This was now on so firm a basis as to allow little room for discussion, and the methods employed were more or less stereotyped. There were, however, one or two points on which further information was still needed. The first was in regard to the Queckenstedt test, the importance of which had been emphasised by Mr. Cairns. It was true that by compressing the jugular veins one could judge, from the rapidity of the drops, whether blockage was present; but it was not a complete test and would not suffice for determining whether minor grades of blockage were present. At a meeting where he had demonstrated the results of the Queckenstedt test he had been criticised

for speaking chiefly in terms of spinal compression, and it was said that he had not paid enough attention to the pain of spinal tumours. That was, in a way, a just criticism; it was true that the typical neurofibroma of the posterior root had for a time pain as its chief characteristic. But pain of a root character was not an outstanding symptom of anything like all spinal tumours. Any unexplained pain might be due to a posterior root tumour; but he did not know of anyone having been brave enough to operate for that pain alone when the legs showed no interference with conduction.

He had had a case of massive tumour of the cauda equina which filled the whole vertebral canal from the level of the first lumbar to the first sacral vertebra, but all the young man complained of was a little pain in his groin; he did not make a point of that pain, and it could only be elicited by pressure. He had bladder trouble and foot-drop, and he had been discharged from the Army as a case of hysteria.

Mr. Jefferson agreed with Mr. Cairns's remarks about lipiodol. Many cases were reported of supposed damage caused by lipiodol which did not bear close analysis, since it did not seem clear that the damage was not due to the disease process already present. It had been made evident that air caused a greater reaction in the cerebro-spinal fluid than did lipiodol. The profession seemed to be coming back to reliance on lipiodol for giving the exact level of the obstruction. In using the Queckenstedt test it was necessary to make certain that there was no fault in the apparatus.

He recalled the case of a young man who complained of tingling in his fingers and who was found to have some wasting of the interossei and disturbance of sensation at the sixth cervical segment. The Queckenstedt test was done and proved positive—i.e., there was no rise of pressure on jugular compression. At operation no cause was found for the block. Therefore, in three weeks the speaker did a second Queckenstedt test, using a larger needle, and made sure there was a free flow of fluid; on this occasion the test was negative.

Mr. Jefferson had heard it said that after operations in the mid-thoracic region there was likely to be severe vomiting, so severe sometimes as to cause death, and the suggestion had been made that the pain might be due to upset of the vegetative centres which controlled the stomach.

A woman aged 21 had come to him with very rapidly advancing symptoms of a complete transverse lesion of the cord. The condition was diagnosed as a transverse myelitis. He operated upon her and found a paravertebral sarcoma. That was entirely cured by radium, but without any improvement in her legs. At the end of three months she began to vomit; so severely did she vomit, and so distended was she, that he wondered whether she had a secondary deposit. Her blood-urea was five times the normal, and he did not doubt that was the cause of the vomiting.

This showed the importance of taking the blood-urea in all cases of spinal tumour before operation.

Discussion.

Mr. A. J. WALTON said that for prognosis in compression of the cord he had come to rely more and more on the time of development of the size of the compression. If the cord had not had time to adjust itself to its new position—i.e., if complete pressure symptoms developed in a few days—the chance of its recovering, no matter what was done, was very slight. This was a very different opinion from what was thought a few years ago, when the prognosis was based on the extent of the clinical damage and no regard was paid to the time element.

Dr. G. F. STEBBING said he had tried section of the anterolateral columns to relieve the pain of tabes, endarteritis obliterans, and malignant disease of the pelvis. In all these cases considerable relief was given, and in many it was complete. All the patients with tabes, however, had a recurrence of pain at some time after operation, though in one case the period of freedom was as long as four years. In some cases of pelvic malignant disease the pain was permanently cured. In only two cases were there evil results: one child had paralytic ileus six days after the operation, and in another there was temporary paresis of the legs, probably because of free handling of the cord.

Dr. GEORGE RIDDOCH thought the importance of root pain in extramedullary tumours could scarcely be exaggerated, though admittedly it was not always present. It might precede spinal compression by long periods. In tumour of the anterolateral column root signs might be absent, and location of the tumour was difficult. Progressive paraplegia in an adult justified suspicion of a spinal tumour. Meningitis serosa circumscripta differed in its clinical features, in most cases, from spinal tumour. The root pain of the former was diffuse and involved the supply of several roots as the condition progressed, on one or both sides of the cord. It had, however, the same slow malignant development. As a rule the position of the pain accurately indicated the site of the tumour. As to the mechanism of the production of symptoms, Sir Henry Head and he had laid stress on the vascular changes as being the main cause of the paraplegia itself, also as being the reason why the symptoms might clear up after operation. Dr. Riddoch doubted whether direct compression of the neural elements played an essential or important part in the disturbance of function in compression lesions, except in later stages. He agreed with Mr. Walton about the rapidity of symptoms of compression indicating the gravity of the prognosis.

Mr. J. PATERSON ROSS spoke of the case of a woman, aged 40, who was suffering from a spinal tumour, which was considered to be lying in an extradural position. In the opinion of Prof. G. E. Gask it was removed completely, but the patient did not improve, she slowly went downhill. He now thought it likely that the interdural projection of the tumour had been missed; the dura had not been opened.

The PRESIDENT remarked that little mention had been made of the use of radium for spinal cord tumours. He had had no experience of radium in these cases, but he had heard of a number in which radium had apparently stopped the growth.

Mr. CAIRNS, in the course of his reply, said that small doses of radon could safely be applied close to the cord, but large doses were contra-indicated, because they might destroy the cord as well as the tumour. Surgery of the spinal cord gave a good opportunity of observing the disturbance of the visceral and sympathetic fibres.

SECTION OF OPHTHALMOLOGY.

AT a meeting of this Section on Nov. 8th Mr. CYRIL WALKER, the President, took the chair, and after a number of clinical cases had been shown a paper on

RETINITIS IN DIABETICS

was read by Dr. P. J. CAMMIDGE. Although retinitis in the eyes of diabetics had been described some 70 years ago, there was still, he said, considerable doubt about its ætiology. The view at first adopted, and accepted by all the earlier observers, that the retinal changes were a direct result of the presence of an excess of sugar in the blood, had been abandoned by most modern authorites, mainly on the ground that the incidence of the complication and the severity of the primary disease did not show the relation which might be expected if this explanation were correct. The frequent presence of albumin, as well as sugar, in the urine of diabetics suffering from retinitis and retinal hæmorrhages had suggested an alternative hypothesis—namely, that the eye changes were dependent upon the effects produced by concomitant renal disease. The blood analyses he had carried out showed that in about 20 per cent. of cases there was a pronounced retention of nitrogenous waste products similar to that met with in severe nephritis, but that in the majority the evidence of renal insufficiency was comparatively slight, while in about 25 per cent. of cases it was entirely lacking. It was therefore probable that, although renal defects were

the primary cause of the retinitis in a small proportion of cases, and were possibly a contributory factor in others, they were not an essential feature of the ætiology.

Apart from persistent or intermittent hyperglycæmia the most constant chemical abnormality in Dr. Cammidge's experience had been a low calcium level in the fasting blood, distinctly pathological figures having been obtained in all his cases, except those in which the retinitis was of the "albuminuric" type, with pronounced albuminuria and serious nitrogen retention. There was no evidence that the low percentage of calcium in the blood of typical cases of diabetic retinitis was the result of an "acidosis"; and although in some instances it might be accounted for by an excessive loss of lime salts in the fæces and urine, there were others in which a normal fæcal ash and a normal excretion of calcium in the urine had been found. The fact that retinitis was rarely met with in diabetics before the age of 35, and usually occurred in patients who had suffered from a mild anapothectic glycosuria for many years, probably had a bearing on the question, for such patients seemed to be particularly liable to develop arterio-sclerosis and calcification of the peripheral vessels. The vascular lesions had been shown to resemble closely those produced experimentally in rabbits by prolonged feeding with cholesterol, and it was therefore not unlikely that the persistent lipæmia found with increasing frequency in elderly diabetics with the passage of time, especially if restriction of the carbohydrate of the diet had been compensated by a liberal allowance of fat, was the determining cause of the vessel changes and, maybe, of the deficiency of calcium in the blood, since there was experimental evidence that the metabolism of cholesterol and calcium were related, a fall of the one in the blood being associated with a rise in the other and vice versa. The blood analyses he had carried out had shown a low calcium and an excess of cholesterol in cases where the excretion of lime in the fæces and urine was not excessive, but a normal cholesterol and low calcium where examination of the urine and stools revealed an unusual loss of calcium by these channels, which seemed to indicate that the deficiency of calcium in the blood was not always due to the same cause. Whatever might be the exact origin of the condition in any particular case, there could be little doubt that the diminished coagulability of the blood consequent upon a poverty of calcium was one of the factors, and possibly the most important factor, in the production of the local hæmorrhages which were of such grave prognostic significance in diabetic retinitis. Further proof of the soundness of this conclusion was furnished by the results of treatment, for it had been found that the administration of lime salts by the mouth in sufficient amount to maintain the calcium content of the blood within the normal range prevented the occurrence of local hæmorrhages in simple diabetic retinitis, although not in retinitis of the albuminuric type. Control of the hyperglycæmia and glycosuria, either by diet or with insulin, had no effect upon the tendency to local hæmorrhages, but it usually brought about a rapid improvement in the vision of the patient. This, and the fact that retinal hæmorrhages sometimes occurred without previous symptoms in patients who had been sugar-free for long periods, suggested that the changes interfering with vision and the hæmorrhagic tendency were of independent origin, the former probably being the result of local defects directly induced by the diabetic state, and consequently yielding to antidiabetic treatment, whereas the latter arose from general vascular changes which were not a direct result of the metabolic disturbances induced by the diabetes, and therefore required independent treatment.

Discussion.

Dr. R. D. LAWRENCE said he was anxious to learn something of the mystery of the causation of diabetic retinitis. He had spent a good deal of time looking through notes of his cases to see what proportion of diabetic patients developed this retinitis, and what factors, besides the coexistence of diabetes, seemed to be behind its production. The hospital cases which he had looked up showed a higher percentage of retinitis than Dr. Cammidge gave, for about 11 per cent. of the diabetics were diagnosed by ophthalmic surgeons to have definite retinitis. His figures were, in fact, nearer to those given by German workers. No explanation seemed to have been given for the hæmorrhages and exudates in the eye. A study of the literature from the ophthalmological standpoint showed that many people denied there was such a condition as diabetic retinitis apart from arterio-sclerosis—i.e., the latter was always present in these cases. This was, he thought, laying too much emphasis on the vascular side. It was generally admitted that all these cases had a high blood pressure, also cardiorenal and vascular symptoms, as shown by the albuminuria and the presence of casts in the urine. Ruling out those cases, however, there remained a number in which nothing seriously wrong could be found in the kidneys or general vessels, and in which the blood pressure was not abnormally high. These latter were the cases which interested him most.

Dr. Lawrence said it was news to him that the blood calcium in these cases was considered important, and he would like to know what Dr. Cammidge regarded as a low figure (Dr. CAMMIDGE: 5·8 to 6·5 is the normal for whole blood). As to the cases which did not show ordinary arterio-sclerosis Dr. Lawrence had a suggestion to offer—namely, that the real damage in diabetes was that done to the endothelium of the vessels; there seemed to be a calcification in the mesial layer of the arteries, followed by its proliferation. This would be a very serious matter in the case of eye vessels. Once this had begun in the eyes of the diabetic there probably was never a return to the normal. Another possible factor in the causation of exudates and hæmorrhages was change in osmosis caused by hypoglycæmia. These changes were responsible for the production of cataracts in diabetics. Since the introduction of insulin he had noticed, following its use, a temporary swelling of the lens. Forty per cent. of the severe cases which he treated in this way showed misty vision for the first few days or hours while the blood-sugar was being brought to the normal level. He would welcome opinions on these two suggestions which he had put forward. The change seemed to be produced by prolonged diabetes more than by the immediate presence of sugar.

Lt.-Col. A. E. J. LISTER asked what was the proportion of cases in which the retinitis cleared up, and in what form and dosage the calcium was given. In India the condition was quite common, and the proportion of retinitis cases among diabetics was higher than the figure Dr. Cammidge gave. The age-incidence was lower in India than in Britain, but the Oriental aged quicker than the European.

Dr. CAMMIDGE, in reply, said his cases had been private ones, and he had only quoted cases as retinitis which were sent to him as such—he did not claim to be an expert in the examination of the eye. His figures might show a low proportion because the condition was pronounced in them all. He found it difficult to form decided views about the ætiology, but he was inclined to agree with Dr. Lawrence that the retinitis was not altogether due to the sugar. But he certainly considered that the œdema which interfered with the vision was due to the sugar, because the condition of the eye cleared up so rapidly when the patient was treated, especially now that insulin was available. As to treatment, the subjects of diabetic retinitis were generally either elderly or very old, and he had a strong objection to giving insulin to elderly people if it could be at all avoided, for they already had a certain amount of change in the heart muscle, and a rapid change in the amount of sugar going to the heart might have very serious consequences. If elderly diabetics could be treated by dieting they were much more comfortable, and they

responded to the treatment quite well, though they took longer to do so. In some cases one was bound to use insulin, but care must be taken that the sugar was not rapidly reduced. In his practice the calcium in the blood was estimated as regularly as the sugar. The form in which he usually gave the calcium was as calcium lactate in an emulsion of liquid paraffin, the latter because most of these patients had some intestinal catarrh. Five, six, or seven grains a day was the dose; it was a prophylactic, and it was necessary for the patient to take it for the rest of his life. Recently he had tried the effect of vitamin D; in some he had tried parathyroid, but the results had not been such as to make it worth while to continue.

Sarcoma of the Iris.

Mr. H. B. STALLARD showed pictures of and described a case of leucosarcoma of the iris, which was under the care of Mr. W. S. Duke-Elder. The man, aged 69, complained of failure of vision in the left eye, and was thought to have a small tumour of the iris in the right eye. It had a nodular surface, and there were small capillary loops on it. The tumour appeared to be fixed to the iris. There were also striæ in the lens. Excision of the eye was declined, therefore Mr. Duke-Elder did iridectomy. A conjunctival flap was dissected out in the vicinity of the tumour, and the anterior chamber was opened by a keratome incision. This incision was afterwards enlarged and the tumour was removed with a good piece of iris on each side of it. It was composed of spindle-shaped cells, having an oval nucleus, and there was a marked absence of intercellular stroma. The blood-vessels had very thin walls, and there was complete absence of pigment cells and of pigment granules between the cells. Later the patient consented to have his eye removed, and serial sections of the globe revealed no other abnormality. Mr. Stallard had been able to find records of 21 cases of so-called leucosarcoma of the iris.

Mr. TUDOR THOMAS read a paper (by Mr. M. S. Mayou and himself) on a case of sarcoma of the iris, which appeared to have originated from a mole.—Mr. MAYOU said his first impression was that it was a cyst, because of the discoloration of the iris; there were posterior synechiæ, and the growth seemed to transilluminate, but Mr. Thomas's view that it was a malignant growth proved correct. The growth was spreading along the surface of the iris, and had begun to invade the ciliary body. The deeper portions of the iris were very little involved.

SECTION OF THERAPEUTICS.

THE USE OF ERGOT.

A MEETING of this Section was held on Nov. 12th, with Dr. PHILIP HAMILL in the chair, to discuss investigations on the Proper Method of Including Ergot in the Pharmacopœia.

Dr. J. H. BURN opened the discussion. He said that his communication was a joint paper, the investigations having been carried out at the Pharmacological Society with the help of his colleagues there. The method used for standardising the various solutions was that of Broom and Clark, which depends on the power of ergot to reduce the contraction due to adrenalin in strips of uterine muscle. Dr. Burn emphasised the fact that the action of liquid preparations obtained from ergot depends on the presence of ergotoxine or ergotamine. Histamine is present in insufficient quantities in the usual liquid extracts to produce any effects. It was not easy to decide on a suitable standard for ergot. The method used with digitalis and strophanthin, that of mixing the various samples of the drug and using a preparation made from them when its activity had been ascertained, as the standard, was not altogether suitable here. The samples of ergot obtained from Spain and Portugal were much richer in ergotoxine than those obtained from Poland and Russia, nor did the quality of the samples necessarily remain constant for any given place. In the United States, however, a similar method of standardisation to that used for digitalis was followed. A mixture of several varieties of ergot was made and extracted, and the fluid kept for six months. The standard fluid thus produced contained, on examination, 0·03 per cent. of ergotoxine phosphate. Dr. Burn and his colleagues, in attempting to establish their standard, had at first excluded Polish and Dutch ergot from their experiments and had taken the mean obtained by use of Spanish ergot. This had worked out at 0·10 per cent. which was found to be too high a standard to be followed by pharmacists, and they had subsequently reduced it to 0·05 per cent.

Methods of Extraction and Deterioration.

Dr. Burn then produced some interesting figures to show the efficacy of the various methods of extraction of the drug at present employed. The use of water only, which was the method set out in the British Pharmacopœia, gave an ergotoxine yield of less than 0·016 per cent.—in other words it was practically inert. The German method of using 50 per cent. alcohol gave 0·02 per cent.; the Dutch method of using 50 per cent. alcohol with 1 per cent. tartaric acid, and the American method of using 50 per cent. alcohol with 2 per cent. of hydrochloric acid each gave 0·10 per cent. Other acids, such as citric, phosphoric, and boric, could also be used with 50 per cent. alcohol. Tartaric, citric, and hydrochloric gave the best results when used with 50 per cent. alcohol, and the figure they yield (0·10 per cent.) is about as high as can be obtained.

Dr. S. WOKES submitted observations on extraction and deterioration arising out of the work described. He said it was extremely difficult to extract the whole of the ergotoxine from any given specimen. He described the method of fractional percolation used in his experiments, showing that each fraction takes out successively less ergotoxine from the sample used. Spanish and Polish ergot seldom yielded less than 0·10 per cent., while Polish and Russian ergot usually give about 0·03 to 0·05 per cent. That is to say that Polish and Russian ergot are useless if the standard is to be maintained at 0·05. The minimum standard for these samples would be 0·015 and the maximum 0·025 per cent. If they are to be used at all, he said, the standard must be lowered and it is possible to reduce the extracts from good samples to this level. Dr. Wokes then went on to speak of the important question of deterioration. He found that a sample of strength 0·07 per cent. when kept in the incubator deteriorated rapidly; by the end of four weeks it had lost more than half its activity; at the end of nine weeks it had lost nine-tenths. A similar specimen kept in the ice-chest was slower in its deterioration; at the end of twelve weeks it had lost half its activity. A sample kept at room temperature lost its activity at a rate somewhere between these two. He said that ergotoxine phosphate (1 per cent.) in aqueous solution also deteriorates; kept in the ice-chest it is found to have lost half its activity at the end of six months. Similar results were obtained with ergotamine tartrate; and ampoules of 0·05 per cent. ergotoxine phosphate fell to half their strength in 24 weeks. Samples of powdered and defatted ergot appeared to be much more stable and took up to two years at room temperature to lose their strength. Dr. Wokes therefore advised that ergot should always be kept in the powdered defatted condition, to be made up into fluid form in small quantities as required. There was, of course, the possibility that the addition of some stabilising substances might prevent the rapid deterioration, and investigations were also being attempted along these lines.

Possibilities of Oral Administration.

Dr. BURN then returned to complete his remarks, and said that on the showing of the experiments described by Dr. Wokes the United States Pharma-

copœia and the Dutch liquid preparations of ergot must be inert at the end of three months from their time of issue. As it was improbable that the preparations were ever used much before that period, and as the B.P. aqueous preparation was useless, one wondered how ergot had obtained its reputation as a therapeutic measure. It had, of course, been used in the first place because of the large number of cases of abortion occurring during epidemics of ergot poisoning. But in these cases the patients were taking the raw drug, not the extract, and it had had no opportunity of deteriorating. This, of course, raised the question of the use of ergot orally as a therapeutic measure. Clearly it could be released in the digestive tract and absorbed into the blood stream, but the question of rate was important. A series of experiments had been made on spinal cats, the blood pressure being recorded and the effects upon it of adrenalin and ergot noted; a certain number of cats who had received 1 g. of powdered ergot the previous night were examined. It was found that the reversal of the adrenalin action by the ergot (from pressor to depressor) occurred earlier in the cats who had had a previous oral dose of ergot than in those who had not. On the strength of these experiments Dr. Burn had formed the opinion that the rate of absorption is sufficiently rapid to be of use therapeutically. He thought that an injection of ergot after delivery could be followed up by oral administration daily during the puerperium where necessary, and indeed there might even be some reason to guard against a cumulative action.

The CHAIRMAN asked for experiences among those present in the use of ergot by mouth.

Dr. IZOD BENNETT said that the solid preparations he had used had always produced some effects, but had invariably been made up with quinine as well as ergot.

Dr. BURN said finally that there was some reason to suppose that the weaker extracts deteriorated less rapidly than the stronger, and that possibly the strong extracts lost their activity rapidly at first and subsequently became more stabilised. Experiments were being made to test this.

MEDICAL SOCIETY OF LONDON.

AT a meeting of this Society, held on NOV. 11th, the chair was taken by Mr. DONALD ARMOUR, the President, and a discussion on the

RELATIVE VALUE OF THE DIFFERENT METHODS OF DIAGNOSIS IN GASTRIC DISEASES

was opened by Dr. J. A. RYLE. The methods of diagnosis applicable in diseases of the stomach, he said, were clinical, radiological, and chemical, with exploratory laparotomy where other means had failed. Gastroscopy had not established its claims. In every case without exception the clinical method was the most important, and all further investigations depended on inquiry into symptoms and ordinary physical examination. The introduction of accessory methods had led to a certain neglect of the older clinical methods, to a loss of clinical confidence, and a lack of appreciation of the scope of inductive reasoning based on the anamnesis. Judgments had been warped and wrong conceptions had grown through the misapplication of the newer tools. The expense of investigations was another argument for conserving clinical wits and curbing a natural wistfulness for the help of objective methods which, after all, were only final in selected types of case. The demand of a half-educated public for complete inquiries was a complicating factor, but if the profession complied with this demand it would bring discredit to medicine, do disservice to the public, and cease to maintain that breed of clinicians which had been one of the prides of British medicine.

The clinical study of the dyspeptic should include: (1) an inquiry into the personal and family history; (2) a very careful inquiry into subjective symptoms; (3) observations on physical and psychological type; (4) a general overhaul of all systems; and (5) a special examination directed towards the digestive apparatus. The collection and analysis of symptoms was as a rule the most useful and most important. Family history was of real value in duodenal ulcer and gall-stones, as well as in dyspepsias associated with general ill-health or psychological disturbances. Age, sex, occupation, habits, seasonal fluctuations of illness, and food or drug idiosyncrasies were all important factors. Worry, fatigue, and sedentary work were potent agents in gastric disturbance, while a dyspepsia occurring regularly in spring and autumn should suggest duodenal ulceration. Nervous and anxious or phlegmatic temperaments were associated with special types of gastric reaction. The general overhaul might reveal little or much, but the little might be as valuable as the much. A rosaceous rash might clinch the diagnosis of true gastritis, as a fixed pupil or absent knee-jerk would draw attention to the tabetic crisis. The routine investigation should include a note on the skin and musculature of the abdomen, the presence or absence of cutaneous hyperalgesia or local alterations of abdominal reflexes, the conformation and contours of the abdomen, and tender points or areas of muscle guard. The teeth, tongue, fauces, stools, and vomitus must be inspected. This lengthy survey would often save time and patience expended in experimental treatment.

Classification of the Dyspepsias.

Dr. Ryle grouped the dyspepsias as follows:—

1. *Habit dyspepsias*, including over-eating, under-eating, over-work, lack of occupation and exercise, insufficient mastication, and constipation.

2. *Nervous or psychogenic dyspepsias*, including aërophagy, exhaustion, worry and anxiety states, hysteria, hypochondriasis, and refusal of food.

3. *Toxic and infective dyspepsias*, including alcohol and tobacco, indigestion, oral sepsis, tuberculosis, anæmia, debility, and visceroptosis.

4. *Irritative dyspepsias*, including ulceration, chronic infections of the appendix and gall-bladder, special sense disturbances like astigmatism, and central nervous lesions like tabes dorsalis.

5. *Mechanical dyspepsias*, including pyloric stenosis, hour-glass stomach, chronic extensive ulceration, cancer, and certain complications of gastro-jejunostomy.

In the first three of these groups, which probably comprised more than half the total seen in consulting work, radiographic investigation and gastric and stool analyses were not indicated and did not give much assistance, except that a test-meal might be a useful confirmation of the diagnosis of a true gastritis. As a means of reassurance to the patient these investigations might be useful, but a meticulous overhaul, a simple explanation, and a vigorous reassurance were usually quite effective. In the two other groups, however, prompt accessory examinations were essential. In any case where ulceration, stenosis, or cancer was reasonably suspected the patient should have a careful X ray examination, including serial snapshots and a detailed report by the radiologist of his method, the times of examination, and the screen observations. If there was hæmorrhage or perforation, however, treatment should precede investigation. There must be absolute certainty of diagnosis when the decision lay between a medical and a surgical campaign. The radiological demonstration of an ulcer was the most accurate diagnostic evidence obtainable; there might be an active ulcer without occult blood, and anything from achlorhydria to hyperchlorhydria might be found in the test-meal of gastric ulcer. In duodenal ulceration the climbing hypersecretory curve occurred in 70 per cent. of cases and was a valuable aid to diagnosis and treatment. A high peak of acidity with rapid emptying contra-indicated gastro-jejunostomy, while a gradually climbing curve with delayed emptying favoured it. Test-meal and stool examination were of no positive value in

reflex dyspepsias, but a full survey of the alimentary and bile tracts might be advisable or occasionally imperative. In general, therefore, accessory methods were of little positive value in functional disorders of the stomach due to general causes; they were often helpful in functional disorders due to extrinsic organic disease, and they were indispensable allies of the clinician in structural disease.

Radiological Examination.

Dr. G. H. ORTON claimed that radiographic examination was superior to all others in the diagnosis of organic gastric disease, provided that it was carried out by an expert with long experience. He showed a series of lantern slides supporting this claim. Very little reliance was now placed, he said, on the indirect evidence afforded by X rays—i.e., the information given by the type of stomach, rate of emptying, and peristalsis. The direct evidence, however, was very nearly 100 per cent. accurate in expert hands. Many of the ulcers shown in his slides were very small and would not be detected by a single or a casual view. The axiom that an ulcer on the lesser curvature produced an incisura on the greater curvature, due to spasm, did not hold when the ulcers were very small. The results of medical treatment should be checked by a very large series of exposures; often an ulcer would only show in one out of a very large number. Healed ulcers showed an alteration of the rugæ of the stomach; transverse ribbing was typical of the scar of an old ulcer. Duodenal ileus should be detected, as it tended to create ulceration, and after gastro-jejunostomy it caused jejunal ulcers.

The Fractional Test-meal.

Prof. E. C. DODDS sent a paper which was read in his absence by Dr. J. D. ROBERTSON. He maintained that the passing of tubes, collection of specimens, and washing out of the stomach were the most important part of the fractional test-meals, and that their delegation to inexperienced persons accounted for the alleged failures of the method. First of all it was essential to see that the stomach was empty before the test-meal entered it; the aspiration tube must be moved about and care must be taken to see that it did not get blocked by mucus. No matter how clean the resting juice, the stomach should be washed out with water after it had been emptied as completely as possible. A technique had been adopted of passing two tubes, down one of which warm water was pumped by a record syringe, while an assistant aspirated through the other tube. If there were obstruction or cancer, several pints of water would be required before the washing came back clean. Then a pint of gruel was given and specimens were withdrawn every quarter of an hour for two and a quarter to two and a half hours. Great care must be taken to see that the tube did not get diverted to the pylorus. Each specimen was gently aspirated, and then injected back again several times to ensure a uniform specimen. Dr. Robertson then showed slides illustrating the difference between a test-meal carried out by an experienced and by an inexperienced person. The results in the latter case were seriously misleading. A sudden drop on a smooth curve indicated that the tube had entered the duodenum. The analysis was comparatively easy; the important part of the technique of the test-meal lay in its collection. Its value lay in the certain diagnosis it afforded of pyloro-spasm due to ulcer, cancer, or functional disturbances, of achlorhydria associated with pernicious anæmia and of advanced cancer of the stomach. In pyloro-spasm there was a large volume of resting juice, a high total acidity and free acidity, and a slow steady rise right to the end of the test. In pernicious anæmia the stomach emptied very rapidly, there was a very low volume of resting juice and little disparity between the total acidity and the base line. In carcinoma there was a large volume of resting juice with high total acidity and complete absence of free hydrochloric acid; often the odour was foul and the colour dark. The disparity between total acidity and base line was very small, provided sufficient care was exercised in washing out the stomach. In a leather-bottle stomach the volume of resting juice was low, and the stomach emptied very rapidly; there was usually blood in the dark, foul, resting juice, and the disparity was not very great. It must be remembered, however, that in earlier cases of carcinoma there might be a normal amount of hydrochloric acid and the only suspicious points might be the foul resting juice and some blood. It was often difficult to distinguish between the achlorhydria of pernicious anæmia and that of benign achylia. To distinguish them, 1 c.cm. of a solution containing 0·75 mg. of histamine acid phosphate and 40 mg. of neutral red was injected subcutaneously at the end of the test-meal, and further specimens were taken every five minutes. Normally neutral red or free hydrochloric acid soon appeared in the specimen. The patient with pernicious anæmia gave no response to this histamine test—i.e., neither neutral red nor free hydrochloric acid appeared in the stomach. Histamine, however, should not be given if the blood pressure were very low.

Much controversy had centred about the significance of lactic acid in the stomach. Careful inquiry had shown that the qualitative tests for lactic acid were unreliable, but a quantitative technique had been worked out, and 46 per cent. of resting juices had been found to contain it. The conclusion reached was that lactic acid was not pathognomonic of cancer nor produced by the cells of the body.

Discussion.

Mr. A. J. WALTON, while agreeing that the clinical examination was extremely important, thought that it was impossible to arrive at a formula for assessing the relative merits of the various diagnostic methods, as their efficacy depended so much upon the skill of the investigator. He quoted a series observed by himself to illustrate the comparatively low percentage of positive diagnoses given by X ray examination in cases where a gastric lesion was revealed afterwards at operation. He would accept a careful clinical diagnosis of lesser curve ulcer in preference to an X ray report. Much publicity had been given of late to the opinion that no gastric or duodenal ulcer should be treated surgically unless stenosis was present, this dictum being based upon the results of medical treatment as confirmed by radiological examination. Barclay, however, had stressed the fact that ulcers under medical treatment would lose their œdema, and become invisible to X rays. The usual six months period of observation after medical treatment was far too short; it was necessary to wait a year or 18 months to be certain of cure. The test-meal had given a high percentage of positive results in ulcer of the pylorus and duodenum, but only 75 per cent. in carcinoma of the stomach. Its results were liable to be ambiguous in mixed cases of ulcer and carcinoma. The clinical examination was, therefore, more important in carcinoma than in non-malignant conditions, as both the X ray and the test-meal were liable to fail.

Mr. H. W. CARSON also stressed the value of clinical methods, especially of the estimation of muscular tone by palpation. He attached particular importance to the history. Of the ancillary methods he preferred radiography, which in some of the malignant cases that had been quoted would have settled the diagnosis in five minutes. X rays were superior to chemical methods in multiple ulceration, especially when ulcers were situated so high up as to be inoperable. Some high ulcers could not be diagnosed in any other way, and the method sometimes averted an unnecessary and dangerous intervention.

Dr. G. W. GOODHART did not consider the radiological method very superior to the chemical. The majority of patients did not suffer from gastric ulcer or carcinoma, the two conditions in which X rays gave the most information. The general practitioner, however, desired a test which would enable him to distinguish the functional case from the organic. Experts might be able to dispense with ancillary

methods, but not everyone who treated patients had their experience, and unfortunately very little had been done for the non-expert. He asked whether the test-meal could give the physician any idea of how to treat a functional disorder; he, himself, believed that it could.

Dr. G. E. VILVANDRÉ denied the existence of functional disorder without an organic basis. A gastric disorder might depend upon extensive pulmonary tuberculosis. Students should be taught to use their hands and eyes, and to ask the patient intelligent questions; that was the only way in which the profession—as distinct from the experts—would learn to diagnose carcinoma in its earlier stages. The radiologist could detect a penetrating ulcer of the lesser curvature, but could not yet say whether it was malignant. If all such cases were to be treated by medical means only bad mistakes must inevitably be made

Dr. A. CAWADIAS said that gastric disease was not primary, but a secondary or even tertiary result of a general or metabolic disturbance of the body, and nothing but a clinical examination would determine the diagnosis of the whole individual. Of the ancillary methods, radiology was the most important. The test-meal, he thought, was on the wane owing to its poverty of positive information; it gave information of a part only of the function of the stomach. Recent physiological research, by showing the intimate correlation that existed between organs, had invalidated the old conception of local functional diagnosis.

Dr. WALTER CARR, to illustrate the danger of dogmatism, quoted a case where malignant disease of the stomach with a very ambiguous symptom-complex had eluded clinical diagnosis for a long time, but had been revealed largely by the chemical investigation of the resting juice.

Dr. W. S. C. COPEMAN maintained that the abandonment of the test-meal on the continent did not prove that it was of no value. However, a test which depended upon the status of the tester was not a practical one, as there were not enough experts to go round, and this might be the reason why it had fallen into disrepute. The clinician wanted to know whether the stomach was reacting to the stimulus of food in a normal secretory fashion, and this information might be obtained in other ways than by estimating the free hydrochloric acid, the secretion of which was controlled by many factors. The possibilities of technical error were equally numerous. A more practical test was the total chloride estimation, which showed variations no wider than those of the hydrochloric acid test and probably gave a more accurate indication of the secretory activity of the stomach.

Dr. GEOFFREY EVANS remarked that most patients who came to a consultant suffered from functional dyspepsias. Diagnosis should proceed along the ordinary lines adopted in organic disease, the first stage being the anatomical diagnosis and the second the physiological. The ancillary methods could provide much valuable information, and each had its own value. Radiology could determine in a functional condition whether the stomach was short or long, how quickly it emptied, and the condition of its peristalsis. Similarly, the test-meal could give information available by no other means.

Replies.

Dr. RYLE agreed that those who could not be experts in radiology and chemistry had better leave these activities alone, but all practitioners of clinical medicine must try to be experts in symptoms. The test-meal gave such varying results in functional disorder that it was valueless, but he tried to apply it in all cases in which he considered the possibility of operation. Hyperacidity caused no symptoms; pain and discomfort were due to other causes, such as tonus, peristaltic abnormalities, and tension; loose thinking about symptoms could only be abolished by studying them. The chief symptoms of carcinoma—anorexia, anæmia, and fever—were clinical, but the other methods should not be neglected.

Dr. ORTON said that none of the very small ulcers were malignant, and that only X rays could determine the size and position of the lesion. Speaking of test-meals with tetra-iodo-phenolphthalein, he quoted the saying that "one had to be very robust to be a patient nowadays."

Dr. ROBERTSON also replied.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF PATHOLOGY.

A MEETING of this Section was held on Oct. 25th, with Dr. J. LAIT, the President, in the chair.

Argyria.

Dr. F. S. BOURKE showed a man suffering from argyria who was admitted to hospital on August 12th suffering from a sore throat and pains in his limbs. He gave a history of syphilis, and so was sent to the venereal department. His colour at once attracted attention. He stated that he joined the Army in 1896 and contracted syphilis in 1897. He served in India until 1908. While he was there some of the men suffered from sore throats, and as he had seen them cauterizing their throats with silver nitrate, he did the same himself. He first used silver nitrate in 1908.

The PRESIDENT said he had never seen a case of argyria, which was now, he thought, very rare. It had been more common formerly, when silver nitrate was used for treating gastric ulcer.—Dr. CYRIL MURPHY said he had seen this patient on a previous occasion, and at that time the pigmentation had only extended as far down as the abdomen.—Sir JOHN MOORE mentioned that some years ago he had seen a case which was the exact counterpart of the one now demonstrated. His patient had used silver nitrate for treating gastric ulcer.—Dr. R. A. Q. O'MEARA said that little was known about the pathology of the condition. The silver was deposited not only in the skin, but also in the internal organs. The silver formed with the albumin of the tissues an insoluble substance which was deposited between the cells, but not in the cells. He thought that the blue colour was more apparent in the face because of the relatively greater blood supply to the skin of the face as compared with the skin of other parts of the body.—Dr. E. T. FREEMAN said that in India silver nitrate had formerly been used as an astringent for the treatment of tropical diarrhœa. Possibly this patient had been given some silver for this condition while serving in India, as well as what he had used himself for cauterizing the throat.

A Case of Extrinsic Stricture of the Œsophagus.

Dr. R. R. WOODS reported the case of a man, aged 48, who was first seen early in August, having had dysphagia for two months.

At that time he could only swallow fluids slowly. He had glands on both sides of his neck and a lump in the right hypochondrium the size of an orange. The liver was enlarged and the spleen palpable. X rays revealed a mediastinal tumour and a stricture at the 7-9th dorsal vertebræ. Œsophagoscopy showed an extrinsic stricture 31 cm. from the teeth. His teeth were removed and a gland sent for section. The report stated that "if it was a tumour it could only be a lymphosarcoma."

The neck was treated with fluorescein and X rays as described by Copeman, Coke and Gouldesbrough (*Brit. Med. Jour.*, August 10th, p. 233). The glands seemed to remain stationary, but the patient had only one course before his death. The œsophagus was treated with radium by means of a special applicator which enabled fully screened radon (1·2 mm. lead) to be inserted while allowing a passage for liquids during treatment. He had two applications; the first (August 28th) was 5·35 mcd. in four days and the second (Sept. 28th) 8·71 mcd. in seven days. Half a drachm

of fluorescein was given every second day by the mouth during treatment. Surface applications to the thorax: radon in lead box 1·3 mm. distanced 1 cm. Front 20 mcd. in six days, back 30 mcd. in four days, each at the rate of 1 mcd. per sq. cm. Although successive X ray reports showed that the tumour was increasing his swallowing improved rapidly, and the day before his death (Oct. 9th) he had fried fish, potatoes and bread and butter for his dinner.

Post-mortem examination, said Dr. Woods, showed two points of particular clinical interest—viz., fibrosis where the radon had been applied and desquamation of œsophageal epithelium round the position of the applicator. This seemed to be the result of a peeling dose rather than a radium burn.

The CHAIRMAN described the post-mortem findings in the case. There was, he said, a large mediastinal tumour which had caused the stricture of the œsophagus by external pressure. There was no intrinsic tumour of the œsophagus. The tumour had infiltrated the right lung in a massive way, resulting in its collapse. The right pleural cavity was filled with fluid. A large tumour mass was found in the region of the head of the pancreas, and another large mass about the size of a fœtal head involved the left kidney. The liver, spleen and suprarenals were free from tumour nodules. The tumour was a lymphosarcoma. Sections cut from the site of the radium application showed fibrosis and retrograde changes in the tumour.

A discussion followed.

Dr. WOODS, in his reply, said he thought that possibly the fibrotic changes in the tumour could be attributed to the radium. All through the radium treatment the patient was getting fluorescein at the same time, but whether this had any effect on the efficacy of the radium treatment, it was not possible to say.—The CHAIRMAN, in answer to questions, said he believed that the primary growth was in the mediastinum. The spleen did not show any cyanotic induration. He thought the fibrosis which had occurred was the result of the radium treatment.

Dr. A. R. PARSONS described cases of cancer of the stomach and duodenum, and Dr. A. B. CLERY demonstrated a specimen from a case of cerebral hæmorrhage.

ST. ASAPH JOINT HOSPITAL.—A new joint hospital for six districts which has been erected at a cost of £11,000, was opened last week at St. Asaph. During the proceedings it was stated that the temporary hospital had been well supported and was "killing the old Welsh prejudice against hospital treatment."

MEDICAL WOMEN'S FEDERATION.—At the autumn council meeting, held in Edinburgh from Oct. 31st to Nov. 2nd, a scheme for a national maternity service, drawn up by a special committee, was accepted after discussion and slight amendment. The dismissal of women from their medical work on marriage was discussed and the opinion was expressed in a resolution "that marriage should not constitute a bar to the appointment of a woman to any medical post, nor should it be a cause for the termination of her contract. Her ability to carry out such contract should be the only deciding factor." The inadequate salaries of the medical women in the employment of the post-office were discussed, and it was reported that the Postmaster-General had consented to receive a joint deputation of the Federation and the British Medical Association. The differentiation made in the salary paid to the woman deputy commissioner under the Board of Control for Scotland was also brought to the notice of the council; the work done by all the deputy commissioners is similar in every respect, yet the woman's maximum salary is considerably less than that of the men, and this maximum was reached by her in 1919. Representations in 1922 and in 1924 without result are to be repeated. Three new committees were appointed—viz.: (1) a standing committee on national health insurance; (2) a committee for the promotion of an improved women's health service for India; (3) a committee to deal with dysmenorrhœa amongst factory workers. A resolution was passed requesting the British Medical Association to consider the desirability of a common approach to the General Medical Council to suggest the appointment of an additional direct representative for England.

Reviews and Notices of Books.

SIR CLIFFORD ALLBUTT: A MEMOIR.

The Right Honourable Sir Thomas Clifford Allbutt, K.C.B. A Memoir by Sir HUMPHRY DAVY ROLLESTON, Bt., G.C.V.O., K.C.B. London: Macmillan and Co. 1929. Pp. 314. 15*s*.

THIS must have been a difficult book to write, for it is a fully dated commentary upon the very varied life-work of a man who kept but few letters and no diary, and who left behind him no personal reminiscences. But Sir Humphry Rolleston had the great qualities for meeting the situation of being closely associated with Allbutt in this most prominent accomplishment and of being also an intimate personal friend. Further, though Allbutt preserved on his side so little correspondence, those to whom he wrote in many instances treasured his letters and their contents have been of great assistance in a study of the man, displaying him as one with multifarious and great interests to the advancement of which he gave unsparingly splendid gifts of character and learning.

The life of Allbutt is here considered in three sections: the first (1836–61) covers early life and education, and reminds us of the valuable post-graduate training which Allbutt underwent after securing classical and science honours at Cambridge and before he decided to start practice in Leeds; the second (1861–92) covers 28 years as a consultant in Leeds and three years in London as a Commissioner in Lunacy; the third tells the story of his 25 years' tenure of the position of Regius Professor of Physic at Cambridge. The famous "System of Medicine" having been projected in 1893, this last division of the book contains a description of the troubles of editorship which Allbutt faced and dispersed by his industry and orderly methods as well as by his erudition. To this period also belongs some of his best-known literary work, while throughout the whole quarter of a century he was the acknowledged guide of his calling in medical politics. Nearly two-thirds of the book is occupied with brief accounts of Allbutt's intervention in matters of the first importance, literary, scientific, and practical, as they concerned the profession of medicine, and hardly a page in Sir Humphry's closely written narrative is without some reference, date, story, or letter serving to remind us of the personality and influence of the great physician.

The book will find a large audience awaiting it.

EYE, EAR, NOSE AND THROAT.

A Text-book of Eye, Ear, Nose and Throat Nursing. By ABBY-HELEN DENISON, R.N., Graduate of Massachusetts General Hospital Training School for Nurses, Boston, Mass. London: Macmillan and Co., Ltd. 1929. Pp. 295. 12*s*. 6*d*.

THIS little book contains three sections, devoted respectively to the eye, the ear, and the nose and throat. Each section begins with a succinct but readable description of the anatomy and physiology of the organs concerned, followed by a short list of drugs and solutions with notes of the purposes for which they are employed. Next comes an account of appliances and nursing treatments, such as various forms of eye pads and bandages, and the methods of irrigating the ears, and this section is followed by a description of the usual operations, the preparation for them, and the complications which must be looked for, and, finally, the nurse's miscellaneous duties in the out-patient department. Much of this part of the book is in tabular form and, being in conformity with the routine of a particular hospital, is not necessarily directly applicable to others; but it will be found valuable for purposes of reference by all nurses undertaking this special work. We are astonished to see flax-seed poultices given as the regular treatment of aural furunculosis; and, in the chapter on drugs used in nose and throat diseases, "ephedrine

1 oz.," is obviously intended for a solution of ephedrine, the strength of which is not mentioned. Lack of accuracy in a book for nurses always has its dangers, though it is of less moment in a later section on mouth-washes, where the direction is given to dissolve one tablet of potassium chlorate in a quarter of a glass of water, the size of the tablet not being specified. The book closes with a sympathetic description of the function of the social service worker. It is provided with a good index, and may be recommended for the purposes at which it aims.

Your Nose, Throat, and Ears; Their Care and Health. By L. W. OAKS, M.D., and H. G. MERRILL, M.D. London and New York: D. Appleton and Co. 1929. Pp. 167. 5*s*.

THIS is, we are glad to note, in no sense a manual of home treatment; it is indeed but little concerned with the question of treatment, but aims at giving members of the public a general idea of the functions of the nose, throat, and ears, and of the ills to which they are liable. The authors have done their work well. They have laid stress, without being unduly alarming, on the dangerous possibilities of such conditions as continued hoarseness, and they have described the commoner affections with a fair degree of accuracy in untechnical language. We would have liked to see an account of the troubles which arise in nose and ears from bathing, and of the precautions which may be taken to prevent them, and we do not agree that spontaneous perforation of the drum produces the stellate appearance figured on Plate VII., or that such a perforation will probably remain permanent. But the authors have succeeded in avoiding most of the pitfalls which beset the path of those who would write a book on technical matters to enlighten the members of the general public.

BIOCHEMISTRY.

A Text-book of Biochemistry for Students of Medicine and Science. Second edition. By A. T. CAMERON, M.A., D.Sc. Edin., F.I.C., F.R.S.C., Professor of Biochemistry, Faculty of Medicine, University of Manitoba; Associate in Biochemistry, Winnipeg General Hospital. London: J. and A. Churchill. 1929. Pp. 482. 15*s*.

THERE is very little change in the second edition of this book, but certain errors have been corrected and the whole has been brought up to date. It deserves the serious attention of teachers of physiology and biochemistry, since it was not only amongst the first of the general text-books of biochemistry appearing in the English language, but is now one of the most popular. The author has treated the subject in a broad-minded way, which makes the book useful to the physiologist who wishes to study biochemistry, and to the qualified man or medical student who wishes to apply to medicine and pathology biochemical knowledge. The keenest critic would have to admit that even on highly debatable questions the statements here expressed are fair and accurate, so that the work is likely to retain a permanent place in the literature of biochemistry.

AIDS TO DERMATOLOGY AND VENEREAL DISEASES.

By R. M. B. MACKENNA, M.A., M.B., B.Ch. Camb., M.R.C.P. Lond., Hon. Assistant Dermatologist, Liverpool Cancer and Skin Hospital. London: Baillière, Tindall and Cox. 1929. Pp. 236. 3*s*. 6*d*.

IN this little book the author, who is the son of Dr. R. W. MacKenna, displays the happy knack of combining the synoptic with the discursive methods. The result is a readable and interesting review, which covers the subjects specified sufficiently both for examination purposes and the daily exigencies of general practice. Some valuable sections on X ray and radium therapy are included, while the chapter on purpura presents an original classification based (1) on defects of the capillary walls, (2) deficiency of the blood-platelets, and (3) defects of the blood-coagulation complex—a welcome departure from such ill-defined entities as purpura simplex and purpura hæmorrhagica. There are a few useful diagrams. Fig. 1 illustrates the structure of the normal skin, but omits to label, although it depicts, the basal or germ-cell layer. Dermatologists may not agree with the suggestion on p. 9 that a starch poultice should be left in situ for as long as 12 hours. The book provides a useful compilation.

THE PREVENTION OF DISEASE IN THE INDIVIDUAL. Third edition. By KENELM WINSLOW, M.D., B.A.S., Attending Physician to the Seattle City Hospital and King County Hospital, Washington. London and Philadelphia: W. B. Saunders Company. 1929. Pp. 431. 12*s*. 6*d*.

FIRST published in America in 1916 this book has become deservedly popular, providing as it does a detailed practical guide for the layman capable of understanding simple scientific terms. The information given on matters of personal hygiene relating to diet and exercise is excellent. In the section dealing with alcohol the author takes a sound commonsense view of the whole position; he looks with disfavour upon bootleg liquor, one part of which is said to cause the same degree of drunkenness as ten parts of pre-prohibition liquor. The classical delirium tremens patient has disappeared from American hospitals; it is doubtful if drinkers of bootleg manufacture survive to develop the chronic effects of alcoholism. Germ diseases are well described. Considerable attention is given to tropical diseases, such as malaria, yellow fever, dengue, and cholera, as well as those with which we are more familiar in this country. The chapter devoted to the prevention of diseases of middle age is well written and will be useful, not merely to the middle-aged, but to those called upon to advise them on their methods of life. The chapter on the prevention of cancer is an excellent one which the layman will readily understand. The volume may be recommended to all who find themselves called upon to lecture or speak to the public upon the preservation of health and the prevention of disease.

GYNÆCOLOGIC TECHNIC.

By THOMAS H. CHERRY, M.D., F.A.C.S., Professor of Gynecology, New York Post-Graduate Medical School and Hospital. Philadelphia: F. A. Davis Company. 1929. Pp. 678. £1 13*s*. 6*d*.

THIS book is intended for the practitioner only and deals with the technical rather than the theoretical aspects of gynæcology. Provided that books of this kind are used by those with a sound knowledge of the basic principles of the subject their value may be great, but there is always a danger that readers may forget that technical dexterity cannot compensate for the absence of knowledge of the pathology of the disease it is proposed to treat. Great pains have been taken by the authors to make the book clear and simple. The description of operations has been restricted to one standard method which is given in detail. The work is lavishly illustrated by one of the best series of illustrations in the literature; these have been drawn by the author himself and accentuate the exact points which he wishes to make clear. An operation for complete prolapse is described which entails vaginal hysterectomy; the subsequent closure of the vaginal vault, it is claimed, tightens up the cardinal ligaments. It is difficult to imagine what happens to the ureters during the process. Wertheim's hystero-vaginectomy for carcinoma of the cervix is not described; radium seems to have completely replaced the radical operation in the treatment of this disease in America. The use of electricity in gynæcology is fully discussed and this section of the book should be consulted by British gynæcologists who seem to have neglected somewhat this weapon. An unfortunate misprint occurs in a table giving the dosage of stovaine for spinal anæsthesia at different

ages; if this error were not detected the reader might be led to give ten times the correct dose to children.

This work will be read with interest and profit by those called upon to operate on the female genital tract.

HÆMATOLOGY.

Einführung in die Hämatologie. By Dr. A. VON DOMARUS, Direktor der Medizin, Abteilung des Städtischen Krankenhauses Berlin-Weissensee. Leipzig: Georg Thieme. 1929. Pp. 185. M.14.

THIS book begins with a good account in plain German of the methods used in the study of hæmatology. The three plates showing the blood-cells, normal and abnormal, are well reproduced. We note that the author favours the use of actual numbers as well as percentages of the different types of white cells. As an example of the error associated with the method more commonly used in this country he points out that if the number of white cells in a case of polymorph leucopenia is expressed in percentages one is given the impression that there is a lymphocytosis, whereas in reality the lymphocytes may be normal in number. In the pernicious anæmia section more prominence might have been given to the liver treatment and to the changes this brings about in the blood picture.

The book contains much information in a small compass.

SEX AND DISEASE.

By ROBERT V. STORER, M.R.C.S. Eng., L.R.C.P. Lond. London: Butterworth and Co. (Australia), Ltd. 1929. Pp. 131. 8*s*. 6*d*.

THE main purpose of this small volume is to assist the layman in the solution of sex problems and to explain the nature and dangers of venereal diseases. The subject is presented in a clear and concise manner. In discussing the pathological effects of these diseases the author has avoided the error of magnifying the dangers and thus of terrifying the nervous and worried reader. To those who are suffering from syphilis or gonorrhœa the volume conveys much sound information; the necessity for regular skilled treatment is stressed, and the results achieved by modern methods and remedies presented in an encouraging way. Dr. Storer lays stress upon the advisability of undergoing thorough tests for cure in gonorrhœa. A brief description is included of Australian public health measures for the prevention and treatment of venereal diseases.

GREEK MEDICINE.

By ARTHUR J. BROCK, M.D. London: J. M. Dent and Sons, Ltd; New York: E. P. Dutton and Co., Inc. 1929. Pp. 256. 5*s*.

THIS selection, illustrative of medical writers from Hippocrates to Galen, forms the volume on Greek medicine in the Library of Greek Thought, which is now being issued under the editorship of Dr. Ernest Barker. It is appropriately dedicated to the memory of Dr. Francis Adams of Banchory. The author modestly disclaims any pretentions to finished Greek scholarship, but tells us that he has been a student of Greek since boyhood, and that for the past 20 years he has been reading Greek medicine in the original tongue. All the extracts included here, except those from Aristotle, are his own translations. The first 34 pages of introduction are explanatory, and deal with Greek medicine before Hippocrates, the empiricists, Greek medicine in Rome, methodism, pneumatists and eclectics, Rufus of Ephesus, and Galen. Dr. Brock draws an interesting parallel between Galen and St. Paul. The Hippocratic selections include *inter alia* his views on such surgical conditions as dislocation of the hip and club-foot. These extracts are followed by an account by Thucydides of the pestilence at Athens, which seems to have been more like typhus fever than anything else. Next come short excerpts from Plato and Aristotle, while notes by Rufus of Ephesus on medical interrogation of patients and on anatomical nomenclature end the first part. The rest of the book is devoted to Galen, while a short appendix contains a description of the plague at Syracuse among the Carthaginians, 397 B.C., by Diodorus Siculus, and a discourse by Aetius of Amida, sixth century, A.D., on aneurysms.

The whole forms a fascinating volume and will be welcomed by medical men with an appreciation of ancient culture.

CLINICAL LABORATORY METHODS.

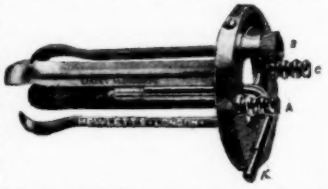
Third edition. By RUSSELL LANDRAM HADEN, M.D., Professor of Experimental Medicine, University of Kansas School of Medicine. London: Henry Kimpton. 1929. Pp. 317. 21*s*.

OF text-books of clinical pathology and laboratory methods there is nowadays no end. The present work stands well in the front flight and the appearance of a third edition will be welcomed by those who already know it. This book was designed largely for the American practitioner who apparently is able to spend more of his time in his "office" laboratory than his British colleague can afford to do. In this country its appeal will be mainly to the pathologist working single-handed in a small laboratory. The author confines himself strictly to procedures of proven practical value and for each of these describes one technique only. The notes given are lucid and concise and include accounts of certain techniques such as that for the determination of indican in the blood by the method of C. H. Andrews, which have up to the present not yet made their appearance in many text-books.

New Inventions.

THE VAGINOSCOPE.

UNDER this title I have introduced an instrument (here illustrated in the open position) which remedies many defects noted in specula hitherto in use. The vaginoscope, in its closed form, is of small cross section, and can therefore be introduced painlessly, the patient being in either the dorsal or lateral position. Illumination is provided by a bulb attached to a battery and flex by a long thin bent tube running in a groove along the lowest blade, the whole being removable for sterilising the instrument itself. A slight up-and-down movement at K makes or breaks electrical contact. Excellent visibility is thus obtained of the vaginal walls, the cervix, and fornices. By loosening screw-knob B), and then placing the thumb on peg (A) and the forefinger on (B) a single grip effects a simultaneous outward movement of the four blades resulting in a quick dilatation of the vagina. Sufficient dilatation having been obtained the screw-knob is tightened, thus locking the instrument. Additional expansion is produced by the bulbous extremity of the instrument, which not only acts as a retaining medium, but also enlarges the field of vision at the inner end of the vagina. No assistant is required to hold the instrument in place, and the hands of the examiner are left free to use additional instruments, &c. On completion of the examination for diagnostic or therapeutic purposes the screw-knob (B) is loosened; then gripping (B) and (C), a single movement suffices to close the instrument, which is then easily removable in its partially closed form. The instrument is a compact, self-retaining and self-illuminated speculum.



Messrs. C. J. Hewlett and Son, Ltd., 35–42, Charlotte-street, London, E.C.2, are the makers.

EDWARD BARON, M.B., Ch.B. Leeds.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 16, 1929.

THE SIGNIFICANCE OF VISCEROPTOSIS.

ALTHOUGH the group of symptoms associated with a dropping of abdominal organs was lucidly described three centuries ago by RICHARD BURTON in "The Anatomy of Melancholy," their cause still remains a matter of speculation, and our knowledge is little more than a commentary on associated conditions. No one has published statistics of the average duration of life in human beings with displaced stomachs and colons; or of their comparative effectiveness as members of society[1]; until this has been done we have no right to dogmatise. But much has been written on the subject, and we are indebted to Dr. HARRY BEDINGFIELD for a scholarly summary in a thesis presented for the degree of M.D. which has been appearing in the last two issues of the *Quarterly Journal of Medicine*. In this thesis the author has reviewed more than 640 papers bearing on the chronic invalidism associated with visceroptosis. Before the introduction of the opaque meal at the end of last century the position of the abdominal viscera during life was inferred from the lessons of post-mortem dissections and observations made in laparotomies. The introduction of formalin as a hardening agent illumined the topography of the abdomen, but the light was obscured by the medium through which it came. We do not know, for instance, how long in the daily life of any person the pylorus lies in the "transpyloric plane" of Addison. With the exception of its proximal and distal attachments—the duodeno-jejunal junction and the iliac colon—the bowel certainly appears to be a mobile and wandering inmate of the abdomen, and this fact, first shown by radiology, has given rise to a new conception of visceroptosis. Until the normal is defined it is impossible to detect the abnormal. There is as yet no consensus as to the normal limits of visceral mobility, while it is increasingly recognised that function is not necessarily impaired by abnormal position. It may be recalled that in "The Ship that Found Herself" the engines which had been built to work on clean steam in an upright position were able to carry on while lying almost horizontal and consuming a mixture of oil and dirty water. Radiology has shown the alimentary canal to possess something of the same adaptability. The stomach can empty itself in the usual time and without functional disturbance, even when the skiagram shows a high degree of dropping (CONRAN and MARXER), and the same holds for other parts of the alimentary canal. Herein lies the riddle of chronic intestinal invalidism. Though the radiograms in two cases may be almost identical, in one case there is pain and disturbance of function, while in the other there is none. Symptoms associated with enteroptosis may disappear without change visible in the radiogram.

Evidently in visceroptosis some other factor is necessary before the comfort of the individual is affected, but whether this factor is to be sought in a local morbid condition or in a bodily diathesis remains undetermined. Before the advent of radiology the local condition was regarded as holding the key to the problem, but this is not the modern view. Theories galore have been brought forward to explain what may be called the primary factor in the production of symptoms in chronic intestinal invalidism. BEDINGFIELD mentions over a score, several of which call for special comment. GLÉNARD, whose name is in France associated with the condition, propounded the mechanical theory in 1885, but modified it later as his clinical studies led him to suppose that the liver played a predominant part. In hepatism, as he called it, there is invoked an inadequacy of the liver cells, congenital or acquired, which may remain latent until called into activity by some factor such as infection or trauma, when the liver fails in its detoxicating action, and a poisoning of the bowel ensues, resulting finally in stasis. ARBUTHNOT LANE, who also regards stasis as the most potent cause of symptoms, has a different theory. In 1885 he noticed a band at the junction of the iliac with the pelvic colon which might, by angulation of the bowel, give rise to obstipation; the overloaded bowel, with its tendency to kink, produces a back-working which, by a series of analogous changes, would finally affect even the stomach; bands supporting the sagging bowel contract in their turn, producing further angulation and stasis, and finally an intestinal toxæmia is produced. GOLDTHWAIT, on the other hand, regards visceroptosis as due to bodily configuration, nervous symptoms being brought about by dragging on the solar plexus. A fourth school debits the causation of symptoms to a localised pathological condition, such as constipation, entero-colitis, appendicitis, adhesions, excessive mobility or fixation of the cæcum. Physiologists have commented on the lack of harmony in the interaction between the different parts of the autonomic nervous system, producing symptoms directly or through the liberation of chemical stimuli. None of these theories in its entirety has stood the test of time, and the treatment founded upon them, whether medical or surgical, has led to disappointment. Each new line of therapy has given good results in selected cases, and the impartial observer is forced to the conclusion that the causa causans still remains to be discovered.

Between mental reactions and the functional condition of the alimentary canal a relationship has long been traced, and this assumption has been amply confirmed by radiologists. One example is A. E. BARCLAY'S well-known observation of the sudden dropping of the greater curvature of the stomach following a shock due to the slamming of a door. The most casual student of the literature of chronic abdominal invalidism must be struck with the frequent reference to mental and nervous disabilities, and the frequent resort to some congenital explanation of the symptoms. Thus we have congenital inadequacy of the liver cells, congenital dislocation of the viscera, congenital malformation of the thorax leading to a low position of the abdominal organs, failure of normal development leading to defective visceral fixation, and, in our own day, congenital bands and membranes. For some time also it has been recognised, notably by H. C. CAMERON, that there exists in children a condition symptomatically analogous in its symptoms to that found in adults. Consideration of these three factors has produced yet another theory to the effect, stated in its most general form, that in visceroptosis some departure from normal mental functioning is fairly regularly associated with the departure from normal

[1] See a discussion at the thirty-second annual meeting of the American Gastro-Enterological Association, Amer. Jour. of Surg., October, 1929, p. 470.

physical functioning. An attempt has been made to associate the nervous diathesis with a particular physical configuration, but the organic structure is so modified and altered in the course of time that rigid lines of demarcation are difficult to define, one group merging into another, and leaving a large unclassifiable borderland. Indeed it is doubtful if the bodily constitution remains the same throughout life. The inherited factors are continually being played upon by the stimuli of environment, and the individual at any moment is the resultant of these forces. Constitutional inadequacy may thus be regarded as offering the most plausible explanation of the chronic abdominal invalid. By this is meant a state of physical and mental make-up, congenital and possibly inherited, which handicaps the individual in his adjustment to the various environmental stresses. Such stresses as infection, a surgical operation, a love disappointment, the loss of a parent or friend, these are all shocks to which the constitutionally inadequate cannot react in a normal manner. A particularly potent factor is a low-grade infection, whether focal or generalised, continuous over a long time, as in tuberculosis. According to the degree of mental handicap, the individual may either triumph over, accept, or become the victim of his physical inefficiency. While this view offers a good working hypothesis, and is one which fits in most closely with observed facts, we may still feel that the whole truth has not yet been told. An obvious criticism is that we cannot adequately explain the greater incidence of abdominal invalidism in women. Two explanations for this are suggested: that girls do not (or did not) lead as athletic a life as boys, and that men have no strain corresponding to that produced in woman by menstruation and its disorders. Neither is very convincing, and, of course, severe cases are met with in males.

PUBLIC HEALTH IN LOCAL LEGISLATION.

THE official index has just been published of the Local and Private Acts passed in the final session of the last Parliament—i.e., between November, 1928, and May, 1929.[1] In this period there were 96 Local and Private, as compared with 39 Public General, Acts. Though too voluminous and discursive for ordinary study, this local legislation contains, as usual, an experiment or two in public health and local administration which, if successful on a small scale, may some day be applied to the whole country.

We find, for instance, the Chester Corporation devising what may prove a valuable precedent for dealing with health conditions on house-boats. The Corporation is given power to prohibit the mooring of these vessels except at approved places, or unless suitable and sufficient sanitary conveniences exist or are provided, on the adjoining land. The Nottingham Corporation Act ingeniously applies to house-boats the "Tents and Vans" section of the Public Health Act of 1925. Thus by-laws at Nottingham may deal with the registration of house-boats, the prevention of river pollution therefrom by "sewage or any other offensive or injurious matters whether solid or fluid," and "the provision of such house-boats with such sanitary appliances as the Corporation may require." Elsewhere there are measures of flood prevention. The London County Council undertakes the duty of supervising and inspecting the banks of the Thames and overseeing the execution of such works as may perhaps prevent the recurrence of recent disasters. There is an echo of the latter in the Westminster City (Millbank) Improvement Act. Housing produces what seems a new clause in the Chester Act for "the provision of fixed baths in such classes of new dwelling-houses as may be prescribed." Tenants at Smethwick will have the advantage that the Corporation can put in pipes, wires and fittings, and can supply gas and electricity in houses where the occupier has asked for, and the owner has refused to give, these facilities. The amenities of town life are protected at Llanelly and Smethwick, where structural alterations can be ordered on complaint by the medical officer that smoke, gas, or vapour from outbuildings or washhouse chimneys causes a nuisance to neighbours. At Guildford, if buildings are being constructed or reconstructed, or if chimneys over 45 feet high are being erected, by-laws may require the deposit of plans showing the elevations and materials. If the proposed structure is likely to disfigure the neighbourhood, the plans are referred to a Standing Advisory Committee of three, consisting of a selected architect, surveyor, and justice of the peace, which can veto the proposal. This recalls a clause in the Bath Corporation Act of 1925. Another fresh precedent is the extended power at Chester to control the erection and painting of facia-boards, signboards, and signs.

In legislation directly concerned with health there has been a dearth of novelties lately. Blackburn, Bognor, Llanelly, and Oldbury, as well as Chester and Smethwick, obtained fresh public health powers in the past year, but most of the provisions are "common form." The control of ice-cream or potted food manufacture, the registration of ice-cream vendors and their premises, the restriction on the carrying on of business by infected persons, compensation to persons thus put out of employment, compulsory notification by doctors of food poisoning, the power to close Sunday schools during epidemics, the parent's duty to notify the head teacher of a child's infection, the extended definition of infectious disease, the obligation to furnish laundrymen's names—all these are nowadays as familiar as the provisions for dealing with unsound food, or for the cleansing of filthy premises. We noted last year in the Sheffield, Rotherham, and London County Council Acts the power to remove to hospital on a medical officer's written certificate and a magistrate's order persons who are either (*a*) aged, infirm, or physically incapacitated, and living in insanitary conditions; or (*b*) suffering from any grave chronic disease, if they are unable to look after themselves properly, or are not being looked after by others. This clause appears this year in the Blackburn and Smethwick Acts. So does the useful provision which allows the medical officer to enter (on a justice's warrant) any premises where a case of dangerous infectious disease is suspected. The two usual safeguards are added that entry must be made only between 7 A.M. and 10 P.M., and that the medical officer is not to examine anyone who is already under the treatment of a medical practitioner, except with the latter's consent. In this last proviso the Smethwick Act uses the words "registered medical practitioner," while the Blackburn Act merely says "medical practitioner." Does this mean that at Blackburn treatment by an unqualified person could prevent the medical officer from exercising his statutory power of entry and examination?

Some of the powers given to local authorities by Local Act seem trivial. It looks odd that a municipal corporation, for instance, should require the special authority of Parliament to charge anyone a fee for

[1] Index to the Local and Private Acts. H.M. Stationery Office. 1*s*. 6*d*.

the use of an automatic weighing machine at public baths. The explanation lies in the restraining influence of the doctrine of ultra vires. Civic enterprise, however, triumphs over difficulties and gives a lead to the nation. Thus in many towns tests for motor drivers are now compulsory; so also is insurance by hackney carriage proprietors. Magistrates in London and elsewhere have protested the law's impotence to punish "joy-riding" (the practice of temporarily making off with someone else's car without his permission) till at length the Government has drafted a Bill on the subject. But Blackburn, Chester, and Smethwick had already made this practice a punishable offence. As with police matters, so with hygiene, Parliament seldom puts into a general Public Health Act any enabling clause which has not already appeared in local legislation.

CARDIAC STIMULANTS.

CLINICIANS and pharmacologists always seem irreconcilable about the so-called cardiac stimulants, and doubtless some of their difficulties arise from the varying nature of "heart failure." Circulatory collapse may be attributable to a breakdown of the heart muscle, of the arterioles or capillaries, or of the vasomotor centre. Thus it is that brandy, for example, by reflex stimulation of the medullary centres or by vaso-dilatation of the peripheral arterioles may improve the action of a labouring heart, though as a direct stimulant of the heart muscle it has no value. Similarly, strychnine has little or no direct action upon the heart muscle—Prof. J. A. GUNN [1] does not think it has ever saved a life—but it has an action on the central nervous system and the vasomotor centre, and in this sense may perhaps be called a circulatory stimulant. Pituitrin is another drug which has no action on the heart itself but it is to be regarded as truly a stimulant, because it causes a powerful contraction of the arterioles and probably of the capillaries. The claims made for camphor and its numerous compounds rest on a different foundation, for it is often said that they have a direct effect upon heart muscle. For this reason they have been very widely used in heart failure, especially on the Continent.

During the last sixty years Prof. P. TRENDELENBURG,[2] of Berlin, and his assistants have been studying the activity of some of these substances in experimental conditions of cardiac and vascular insufficiency. Like other workers he has found that their action is only to be detected in a failing heart, since the optimal activity of a normal heart apparently cannot be improved by any of the substances which he has tested. The effects of digitalis and strophanthin, for instance, can only be seen in the damaged heart and TRENDELENBURG draws attention to the contrary actions of adrenalin and ephedrine in health and disease. With a healthy heart these drugs constrict the arterioles so strongly, and the peripheral resistance is thereby so greatly raised, that the cardiac output per minute actually falls; the glucosides of digitalis and strophanthus cause far less vaso-constriction and thus produce less resistance to the heart's action. With an "insufficient" heart, however, adrenalin can directly stimulate activity so that the volume pumped through in a minute increases and the pressure in the arterioles falls. When the heart was experimentally damaged either by gradual exhaustion or by suitable poison—e.g., histamine or oxidised salvarsan—TRENDELENBURG was unable to show that, in therapeutic doses, the preparations containing camphor which he examined were of any use in reducing cardiac insufficiency; some even increased it. But when heart failure was produced experimentally by asphyxia from paralysis of the respiratory centre, these camphor compounds were able to restore the respiration and in course of time they regularly overcame even the severest cardiac insufficiency. This was especially obvious when the respiratory centre was paralysed by morphia, and less so when chloral hydrate was used. A purely "vascular" failure cannot easily be produced in the laboratory, but in this type of insufficiency the camphor derivatives again seemed to be entirely inactive; while adrenalin and ephedrine, as would be expected, were able to restore the circulation to normal conditions. Digitalis and strophanthus were only slightly active.

Purely arteriole or capillary failure must be uncommon clinically, because circulatory failure usually comes from a combination of vascular and cardiac factors. In such combined failure a cardiac stimulant should both improve the heart's action and constrict the peripheral vessels. Obviously the cardiac stimulation must not be less effective than the raising of the resistance from peripheral constriction, for if the blood pressure is raised more than the heart is stimulated the circulation will be hindered rather than assisted. This may sometimes happen when adrenalin is used—since the associated cardiac improvement may not be great enough to overcome the increased blood pressure—and it must be a constant result of injecting camphor compounds if it is true that they do nothing to remove muscular failure of the heart and only have the effect of increasing the resistance against which it is acting. TRENDELENBURG'S research suggests that camphor preparations are actually harmful in heart failure. At best they are inactive except where the conditions are such that by stimulating the respiratory centre we can remove the cause of failure—that is to say, when we are faced with lack of oxygen or excess of CO_2.

[1] See THE LANCET, 1928, ii., 758.
[2] Med. Klin., 1929, xxv., 1573.

FOR VALOUR.

THE armistice was signed ten years ago and the entrance upon a second decade was marked by the action of the Prince of Wales in presiding over a dinner to V.C.'s given in the Royal Gallery of the House of Lords on Saturday in last week. The dinner was organised by the British Legion and 321 of the holders of the Victoria Cross, representing all parts of the British Empire and all levels of social rank, met, having the common distinction of proven valour and the common desire to assist the ex-Service men in need, and to help the widows and dependents of those who gave their lives in the Great War. The Order was instituted at the close of the Crimean War, and there are alive some 460 holders of the Victoria Cross. Of these 321 were present at the dinner, a high proportion indeed when the difficulties of travel over the distances of the Empire are remembered, and the possible age and infirmity of some of the veteran wearers of, in the graceful words of the Prince of Wales, this Most Enviable Order. Enrolled in the Order are 14 medical men, of whom the following were present at the dinner: Major W. B. Allen, R.A.M.C., Colonel J. Crimmin, I.M.S., Captain B. Hutcheson, Can. A.M.C., Colonel E. T. Inkson, R.A.M.C., Lieut.-Colonel F. S. Le Quesne, R.A.M.C., Major-General Sir Owen Lloyd, K.P., and Lieut.-Colonel J. H. Reynolds, R.A.M.C. Corporal J. J. Farmer, Army Hospital Corps, was also present.

Annotations.

"Ne quid nimis."

A NEW RESEARCH HOSPITAL.

A DRASTIC change in the scope and purpose of any charitable institution must have parliamentary sanction and past subscribers may be assured that this would be withheld unless the alteration was warranted by a change in the needs of the population served. The fact that an Enabling Act was passed in May of this year, allowing responsible authorities of the Mount Vernon Hospital, Northwood, to use their lands and investments for the investigation and treatment of malignant disease instead of for diseases of the chest is an indication of such a change. In recent years the establishment of sanatoriums by local authorities has so diminished the number of patients applying for admission to the hospital that its council, with the full consent of the medical staff, sought and obtained permission to turn their efforts in a new direction. A scheme of work and development, framed with the help of experts, has been generally approved and is being put into speedy effect. The council of management of the hospital on which the medical staff is represented is being assisted by an advisory committee whose duties will be to give advice on the staffing of the hospital, on medical and scientific matters, and on the forms of treatment and research to be undertaken in the hospital. The new organisation differs in many important points from that of hospitals not primarily dedicated to investigation. A whole-time director of research is to be appointed to devise and coördinate schemes of work and the appointments of the honorary staff will be subject to annual consideration in accordance with the particular object of the hospital's research into various treatments for malignant disease.

The survey of the history of this hospital and the reasons for its reconstruction, given on another page, is of more than local import. The same sequence of events might equally well have occurred in the life of any hospital designed to treat cases of infectious disease which are now for the most part being dealt with effectively in rate-supported institutions. Some will regret the change, but it may be a prototype of other changes and may point the way to the sound allotment of work between voluntary hospitals and those organised and supported by the local authorities. Routine treatment of disease by established methods can be carried out safely in any well-conducted hospital. The critical investigation of pathological processes and the assessment of the scope and limitations of methods of combating them is essentially work to be carried out in a hospital designed for the purpose. Medical students would, in an ideal state, have access to both types of hospitals, though not necessarily at the same stage of their careers. The conversion of the Mount Vernon Hospital to other purposes from those which it was intended to serve is not likely to be an isolated one.

ERROR IN DIFFERENTIAL BLOOD COUNTS.

THAT even in the most carefully prepared blood smear the white cells are far from being evenly distributed is recognised by everyone who has ever looked at such a preparation. That the various classes of white cells alter in their distribution in different portions of such a smear is well known to all who study them with any closeness. And that these facts must have a disturbing effect in a differential count of white cells is self-evident. Most workers have been content to do as best they can by the random selection of a few fields in a smear; others, following Naegeli, have tried to reduce the error by counting up to a thousand cells. Meanwhile, the laws governing distribution of the white cells in a smear have not come in for much careful consideration, and this is an omission which Curt Gyllenswärd, of Stockholm,[1] has tried to remedy. His results are reported in a very long paper which bristles with formidable calculations and should be consulted in the original by those interested. In brief, it may be said that he condemns the cover-slip method of preparation, and recommends that form in which the blood is smeared on a microscope slide by drawing a second slide along its length. In such preparations, however, the smaller cells tend to be deposited more quickly than the larger cells as the movement of the blood over the receiving slide decreases. The result of this is the formation, at the top and bottom of the slide and in the "tongue" at the end, of "zones" of lymphocytes, neutrophiles, eosinophiles, and monocytes. Counts conducted in these zones may show a relative distribution of the different classes of cells very different from that which obtains in the circulating blood. To avoid the influence of such zones Gyllenswärd recommends that in making a differential count the first and the last five millimetres of the smear should never be included, and that the count should be made on the central portion of the slide in transverse travels. If these precautions are taken he finds no advantage in including more than 300 white cells in the count.

BISMUTH IN THE TREATMENT OF SYPHILIS.

EVER since bismuth was introduced into the treatment of syphilis in 1921 it has been regarded almost universally as a valuable spirochæticidal drug. From time to time, however, a voice has been raised to question the advisability of using it in place of the older remedies, mercury and arsenic. In 1927 [2] Dr. T. Anwyl-Davies discussed the action of bismuth on the *Spirochæta pallida* and, following the conclusions of W. Kolle and his collaborators, declared that bismuth had no direct curative action on the infection but merely inhibited the disease. Kolle's experiments and Anwyl-Davies's conclusions were discussed and strongly contested by Dr. C. Levaditi and Dr. L. Fournier.[3] We publish this week and last two further papers on the subject and a report of the discussion at the Venereal Diseases Section of the British Medical Association at Manchester last July. Dr. T. M. Ling has been working at St. Thomas's Hospital with bisoxyl, a suspension in water of bismuth oxychloride and chloretone. Subcutaneous injection of this preparation does not lead to the persistent pain and swelling characteristic of many forms of bismuth, and Dr. Ling has found it extremely useful in congenital syphilis, especially in lues tarda. He suggests that the spirochæte can acquire resistance to arsenic and mercury after prolonged treatment, and that in cases of this kind bismuth, without causing any untoward symptoms, will render serologically negative a fair proportion of apparently Wassermann-fast patients. Prof. H. Ritter and Dr. C. L. Karrenberg have been working at Hamburg with intramuscular injections of bismogenol, a suspension of a bismuth compound of a highly valent oxybenzoic acid in olive oil. They have found this eminently satisfactory, and declare that it has an abortive action on the disease. A number of patients have been treated by bismuth exclusively.

The case for bismuth is strengthened by these new reports. Prof. Ritter and Dr. Karrenberg suggest that many of the objections alleged against it depend on the very inadequate knowledge that the physician has of the exact amount of bismuth metal he is giving and its fate in the body. They also point out that the criteria for a successful antisyphilitic remedy are by no means standard. The amount of bismuth varies extraordinarily in different preparations and

[1] Acta Pædiat., 1929, vol. iii., Suppl. ii.
[2] THE LANCET, 1927, i., 148, 199.
[3] Ibid., 1928, i., 692.

in different batches of the same preparation. The rapidity of absorption varies with the mode of application, the solvent or suspension medium, the concentration and the size of the particles. Some reports base their claims for success on rapid disappearance of the spirochætes, others attach more importance to the serological changes, others again to the clinical progress or alleviation of obvious symptoms. Most people seem to agree on the relative harmlessness of the most recent bismuth preparations compared with the quite grave risk attaching to arsenic and mercury administered in spirochæticidal doses. Very little is known of its mode of action. It is not a direct spirochæticide, as the amount in the blood at any time is never great. According to Dr. Svend Lomholt, the best technique for securing regular and uniform absorption is to maintain over a long period a high concentration in the body. The choice of preparation among the many which have been placed on the market and the estimation of the danger-point, are not easy matters. Dr. Lomholt placed the daily dose at about 0·5 mg. of bismuth metal per kilo of body-weight, but laid down that axiom which it is so important to remember in these days of standard treatment; every patient must be treated as an individual according to his own particular circumstances. There is a general consensus of opinion that the treatment should not be painful if the technique is good.

From the differences of experts no general conclusion can at present safely be drawn. A great deal of painstaking research is required to determine the factors which influence the absorption and retention of bismuth in the human body. Only those who have considerable experience of all the antisyphilitic remedies are justified in using any one to the exclusion of the others in any particular case. They act differently and each has its own values and dangers. The syphilologist must keep all three metals in his surgery, and continue to rely principally upon his clinical sense for the decision as to which and what proportion of each shall be administered in any case. Meanwhile he looks to the laboratory worker to furnish him with precise information about the pharmacology of his drugs.

TONSILS AND ADENOIDS IN FRANCE.

IN this country for many years the great majority of surgeons operating on the tonsils have aimed at complete removal, either with the guillotine or by dissection. If a portion of the tonsil remains the operation is considered to some extent a failure, and indeed septic trouble in old stumps is common enough to suggest that complete operation is advisable. To perform this ablation with enough certainty, and at the same time to secure efficient hæmostasis, it is necessary that the patient should be perfectly quiet. Hence general anæsthesia is almost always employed here for children, although local anæsthesia is being used more and more for adults. But practice of this kind differs widely from country to country. The *Vie Médicale* recently asked a number of laryngologists whether they removed tonsils and adenoids with or without anæsthesia; if under anæsthesia, what method was most advisable; and, finally, how they dealt with adults. The twenty-one replies[1] show that they do things differently in France. For children of tender years, below an age which varies from two to five years, the large majority of operators use no anæsthetic, either general or local; for older children the proportion is almost exactly reversed, a general anæsthetic being preferred by about two-thirds of those answering the queries. It may be noted that some of those who condemn the operation without anæsthesia do so very strongly on the grounds that it is inhumane, that it does not allow careful operation, and that it makes children so frightened and suspicious that subsequent medical examination and treatment become very difficult. These are considerations which receive full weight on this side of the Channel. For adults local anæsthesia is generally recommended, only two preferring a general anæsthetic; infiltration with a solution of novocain is the method usually employed. Ethyl chloride is the general anæsthetic employed almost exclusively, but it should be remembered that rapid operation is the rule, and that complete tonsillectomy is not usually its aim, or its result. Although this subject did not come directly into the questionaire, five operators said that they performed tonsillotomy, not tonsillectomy, in children, and two that they did so also in adults.

[1] Vie Méd., Oct. 25th, p. 1053.

LONDON SUBWAYS.

THE urgent need to inquire into the cause of London traffic fatalities, especially among children, is referred to in the annual report of the Coroner for the City of London and Southwark. Dr. Waldo points out that during recent years some third of the deaths caused by traffic fatalities have been among children and young persons. More than ten years ago, at Dr. Waldo's suggestion, the Borough Council of Southwark adopted the system of providing crossing places at certain fixed spots, the places being indicated by signs and directional notices, while school teachers were asked to explain to children the whereabouts and uses of the provision. The results were satisfactory, and many municipal councils have followed the example of Southwark. In several places in London where the channels of busy traffic decussate subterranean passages are now employed, and more subways are projected, despite the huge expense of their construction. But these subways make for public safety and must not be confused with the subways for the passage of gas and electrical mains which, in another part of his report, Dr. Waldo regards as a proper subject for Government inquiry. Referring to recent explosions and floodings, whose occurrence is in the memory of all metropolitan dwellers, he considers that the risks run by the community are great, seeing that in 1928 the explosions in electrical manhole boxes in the City numbered six, and in 1927 no less than 14, while no satisfactory scientific explanation of the accidents is forthcoming. That the London County Council is fully aware of the situation can be assumed from the announced intentions of the General Purposes Committee of the Council following upon a report of an official inquiry into the great Holborn explosion. The General Purposes Committee suggests that the Council should give effect to the recommendation of the committee of inquiry regarding the ventilation of cellars and vaults constructed under streets and connected with buildings, and that the necessary amendments to the London Buildings Act should be secured.

THE CONTRIBUTION OF MEDICINE TO INDUSTRY.

A REPRINT[1] of the Shaw lectures, delivered by Sir Thomas Legge in the early part of the year, confirms the impression then gained[2] of the unfolding of a romantic story in industrial medicine. Certain incidents are found to stand out with prominence. First comes the fact that lead poisoning in industry, whether in the potteries or in the white-lead trade, has been robbed of its terrors by the Shaw lecturer's discovery that it was caused by breathing lead dust and by his quiet insistence upon preventive regulations based on this discovery. Here is enough to earn the gratitude of his generation, and we may sympathise with him in the rejection of his advice to the Government to abolish lead poisoning from its last stronghold in the house-painting trade. Next may be placed the success achieved in freeing the woolcomber from the danger of anthrax, an old-time enemy, through the disinfection of all suspected wool as it arrives in this

[1] Thirty Years' Experience of Industrial Maladies. Royal Society of Arts. 2*s.* 6*d.*

[2] THE LANCET, 1928, i., 513.

country. To this subject Legge devoted his Milroy lectures over twenty years ago. Last we would mention the prominent part he played in establishing methods for extending compensation to industrial diseases, which have been widely copied by other nations. He stresses, as a Parliamentary debate last week stresses, the enormous preponderance of claims arising from coal-miners for conditions peculiar to their occupation; but coal-miners are not protected by the Factory Acts which Legge had to administer. Yet, notwithstanding the striking results attained by appointing medical inspectors of factories, of whom Legge became the first in 1898, no medical inspector of mines was created until two years ago, after the connexion of the Ministry of Mines with the Home Office had been severed for ten years, and then in response to representations from the Medical Advisory Committee of the Ministry. There is still work enough for a medical inspector of mines to do but, as Legge asks in his Shaw lectures, what might not have been accomplished if the appointment had been made more timely?

THE DANGERS OF CONSERVATIVE DENTISTRY.

THE evolution of dentistry from a surgical to a preservative art was hailed in the early part of this century as a triumph of science over mere operative zeal, and conservative dentistry was the aim of every conscientious practitioner. Every tooth which could by any means be made into a useful mechanical instrument was scrupulously preserved, and a mouth full of teeth whose pulp had been killed and extracted was passed as sound provided the gums seemed healthy. The application of radiological means of diagnosis to dentistry and the correlation of areas of rarification with pathological conditions, not only local but general, has destroyed the confidence of both medical and dental professions in such decisions. In America especially, according to Dr. Boyd Gardner, who is head of the dental section of the Mayo Clinic, it is now becoming recognised that the surgery of the mouth has been unduly belittled. In a lecture given in London at the Royal Dental Hospital on Nov. 4th, he explained that in his clinic the dental student is instructed when he looks into a patient's mouth not to think first what could be done in the way of a filling, but to have regard to the cause of the condition. The removal of foci of infection shown by radiological examination had been followed by the clearing up of general disorders such as ulcerative colitis and even of certain types of arthritis. Dr. Gardner urged the desirability of taking radiograms after as well as before any operative measure. At the Mayo Clinic exposures were standardised, so that work in the dark room could proceed with almost mechanical regularity.

The value of X rays in controlling treatment is now established in this country. Many dentists have installed apparatus next to their consulting-rooms and the convenience to the patient of such an arrangement is unquestionable. In a lecture delivered to the British Institute of Radiology on Nov. 4th Dr. J. F. Brailsford claims that the most helpful information will be obtained when the radiography is done by an impartial observer. In his view the radiogram and its interpretation should hold the same position to the patient's medical adviser, dental surgeon, and the patient as the auditor's report does to the directors, staff, and shareholders of a company. They should provide the doctor with independent evidence of the condition of the patient's teeth, particularly that which is likely to have a bearing upon his general health, and they should give the dental surgeon support in dealing adequately with any lesion which may be present. Dr. Brailsford calls attention to the embarrassing position of the physician called in to see a patient suffering from what he believes to be septic absorption, possibly from teeth, when he is told that they have already been examined radiographically by the dentist and reported to be sound. But surely this a question only of interpretation of radiograms; it calls not for a further X ray examination which, as Dr. Brailsford rightly contends, would involve the patient in unnecessary expense, but for inspection of the results of that already made in consultation with the dentist. Admittedly, whoever takes the radiograms, there is no longer justification for the wholesale extraction of teeth without X ray examination. Dr. Brailsford points out that a doctor's plea for such extractions is based on his experience that this treatment results in alleviation of certain symptoms, and that equal success attends the extraction of only those teeth shown by the radiogram to be septic, when the patient is spared the digestive disturbances often experienced by edentulous patients. The question resolves itself into the problem of interpretation of dental radiograms. Mistakes in interpretation in the past have been due to lack of experience or knowledge of photographic and radiographic technique, or of the anatomy and pathology of the part. A radiogram may be so poor that the most experienced cannot interpret it; on the other hand, it may be excellent and yet convey little or no information to the inexperienced observer. Dr. Brailsford showed a series of lantern slides illustrating pathological conditions of the teeth and jaws and of errors of interpretation.

The technique is now well standardised and the correlation of the radiographic appearances with clinical conditions has been more easily and firmly established than that of lesions elsewhere in the body. For example, a large series of post-mortem examinations is required before mediastinal radiograms can be properly interpreted, but extraction of a tooth is usually sufficient to show how accurate has been the diagnosis of an apical lesion. The radiographic signs are there for all to read, and it is only necessary to remind enthusiasts that symptoms do not always clear up when the tooth is removed.

SUPERSTITION.

SUPERSTITION is the seed of enlightenment, the negative aspect of an apprehension of things beyond present knowledge. It holds all the truths of science, but holds them so fast that sometimes it seems far more the enemy than the friend of progress. The shadowy borderland between folklore, religion, and psychology has been all too little explored, but will prove a most fruitful field for investigation by the psycho-ethnologists of the future. Sir Robert Armstrong-Jones selected Superstition as the subject for his presidential address to the Psychiatry Section of the Royal Society of Medicine on Tuesday last. He was able to illustrate his remarks by pointing around him, for the meeting was held in the Wellcome Historical Medical Museum where the outward and visible signs of the superstitions of past and present are collected in profusion. On the previous evening the Curator, Mr. L. W. G. Malcolm, had been speaking to the Egypt Exploration Society on Egyptian Medicine and showing how the superstitions of the Egyptians had contained the germs of much that we now recognise as scientific knowledge. Death and disease they regarded as unnatural and abnormal, due to possession, and the prescriptions in the papyri are prescriptions not for curing but for banishing, driving out, or terrifying the disease. The very multiplicity of the prescriptions is evidence of their unscientific nature, yet among them were some which contained appropriate drugs, and as these in time superseded their less successful fellows, so the magician gradually became a physician and the Egyptians groped their way towards a rational pharmacopœia. Through a jumble of magic and sorcery, said Mr. Malcolm, we can trace the foundations of Grecian scientific thought, and especially does civilisation owe to the Egyptians that favourable attitude to anatomy which resulted from the practice of mummification. From the Egyptians Sir Robert Armstrong-Jones traced the threads of superstition through Greeks, Romans, and Scandinavians to Anglo-Saxon and modern times, but

he had no kind word to say for it. Psychologically he described superstition as suggestibility, based upon fear, and he condemned it as no innocent mistake but a wilful and shameless belief contrary to the laws of nature, to experience, and to common sense. This may certainly be applied to those who cling to superstitions or conventions when there is at hand the means of rational apprehension, but when the primitive mind is striving with inadequate equipment to grasp an idea beyond its capacity to understand, superstition may be but the stepping-stone to knowledge. The curious thing about superstitions is that they so often contain, buried deeply in apparent nonsense, the germ of the truth. Kipling has illustrated this in his tale of Nicholas Culpepper who, for the most fantastic astrological reasons, set about destroying rats as a means of combating the plague and was more successful than the half-educated scientific man of his time. Quaint beliefs still hold the field in many departments of life and medicine where knowledge has yet failed to give full illumination. We shall do better than our fathers if we investigate them with sympathetic interest, rather than despising them as foolish or harrying them as evil. Explored with intelligence they are apt to yield, as several courageous investigators have shown, an unexpected treasure of new understanding.

INFECTIOUSNESS OF TUBERCULOSIS IN CHILDREN.

WHILE the view that tuberculosis is essentially an infectious disorder is gaining ground it is generally held that only open cases of tuberculosis, with tubercle bacilli in sputum or excreta, are a danger to their associates. In children it is so difficult to obtain sputum for examination that the question of individual infectivity is a difficult one to settle. Dr. Vlademar Poulsen, of Copenhagen, has recently investigated[1] 67 children, ranging from 2 months to 8 years of age who gave a positive tuberculin reaction. His method of obtaining sputum was that first introduced by Meunier in 1898, and revived at the present day by P. F. Armand-Delille and his pupils, which consists in washing out the fasting stomach in the morning with 200–300 c.cm. of sterile water, centrifuging the result and staining the deposit for tubercle bacilli after Ziehl-Neelsen. Another portion of the sediment may be inoculated on Petroff's medium or injected into a guinea-pig if further confirmation is desired. In this way 26 out of 67 children were found to have tubercle bacilli in the wash-out containing all the sputum swallowed overnight. The age distribution of these cases with positive findings was of interest; every one of 14 cases under 1 year of age gave a positive result, a finding in keeping with the generalised nature of tuberculosis at this early period of life. In older children positive results were obtained less frequently; over 3 years of age only two children had tubercle bacilli in the wash-out, of whom one had phthisis with cavitation and the other tuberculous pleurisy. The cases in Dr. Poulsen's series of tuberculous meningitis were interesting because, as he points out, meningitis is rarely the sole localisation of tuberculosis, miliary disease in the lungs being, as a rule, present also. Out of six cases of meningitis in the series he was able to show that three were excreting tubercle bacilli. From these figures he argues the need for isolation of certain tuberculin-positive children according to their age and condition. All children under 1 year of age with a positive tuberculin reaction he regards as infectious, whether definite physical signs of disease can be found or not. Between 1 and 3 years of age, in most cases, such children are probably non-infectious unless they have meningitis or definite pulmonary localisation; while above this age it is, he thinks, safe for tuberculin-positive children to mix with others, provided neither pulmonary tuberculosis nor pleurisy is present. Even if the need for strict isolation is not generally admitted, Dr. Poulsen has done a useful service in calling attention to a method of obtaining proof of the presence of tubercle bacilli in the sputum of children. His lavage method warrants a trial in this country.

[1] Jahrb. f. Kinderh., 1929, cxxv., 206.

MEDICAL WOMEN AT V.D. CLINICS.

A FEW weeks ago a candidate for a post at a venereal diseases clinic in Scotland was rejected on the ground of sex, as apparently it had been decided that a woman *qua* woman could not hold such a post there. The incident naturally led to some discussion at the Medical Women's Federation, when the council was satisfied of the existence of a definite desire on the part of many women patients to be treated by practitioners of their own sex. In England and Wales, although there is no official ruling to prevent the appointment of women, the number who hold office at V.D. treatment centres seems to be comparatively small. At the close of 1928, according to the report of the chief medical officer of the Ministry of Health, the number of such centres was 188—viz., 178 in England, 10 in Wales. Besides the treatment provided at the regular centres, special arrangements exist at 11 maternity and child welfare centres for the convenience of affected women and children, and besides these there are 14 hostels for the care of girls suffering from venereal diseases and 8 institutions for the reception of pregnant women. Inquiry at the Ministry has elicited the fact that there are 52 women practitioners holding posts at treatment centres, 18 in London and 34 in the provinces. In London there are women medical officers at Guy's, King's, London, South London, Royal Free, and Royal Northern, while in the provinces there are women medical officers at Ashton-under-Lyne, Bradford, Birkenhead, Birmingham, Blackburn, Bolton, Hull, Leeds, Leicester, Lincoln, Liverpool, Newcastle-on-Tyne, Nottingham, Oxford, Plymouth, Preston, St. Helens, Southampton, Southend-on-Sea, Stroud, Sunderland, Waddon, and York. The Federation is not satisfied with this position and has passed a resolution urging that medical officers treating female venereal disease cases whether in hospitals or clinics should be women practitioners where and whenever such practitioners are available. There is cumulative evidence that the clinics serve their purpose more fully where this is the case; at the Royal Free clinic the medical officers see many of the most dangerous type of prostitute and their ability to get these women into hostels must prevent a large amount of infection. It may be that there are not at the moment enough women with sufficient experience to warrant appointment to such clinics, but if the demand was present there is little doubt that this defect would soon be remedied.

THE Nobel Prize for Chemistry for 1929 has been divided between Prof. Arthur Harden, D.Sc., F.R.S., and Prof. Hans von Euler. Dr. Harden is head of the Biochemical Department at the Lister Institute and Professor of Biochemistry in the University of London. Prof. von Euler holds the chair of organic chemistry in the University of Stockholm and is well known for his work on enzymes and vitamins.

ON Wednesday, Nov. 27th, the Duchess of Atholl will lay the foundation-stone of the new London Clinic and Nursing Home at the top of Harley-street. The ceremony will take place at noon at the Devonshire-place entrance to the Clinic, and will be followed by a luncheon at 1 P.M. at the Trocadero Restaurant, Piccadilly.

HEALTH EXHIBITION IN LONDON.—Lord Askwith will open the New Health Society's second annual exhibition at 3 P.M. to-day, Friday, Nov. 15th, at the Royal Horticultural Hall, Westminster. The exhibition will be open daily from noon to 10 P.M. until Nov. 22nd.

The Clinical Interpretation of Aids to Diagnosis.

A Series of Special Articles contributed by Invitation.

LII.

THE DIAGNOSIS OF ACUTE FOOD POISONING.

PART I.*—CAUSATION AND CLINICAL PROBLEMS.

A STUDENT of medical evidence given at inquests on deaths from food poisoning acquires the impression that the knowledge of this subject possessed by many practitioners lags behind the scientific data available. The more specialised bacteriological and public health aspects of food poisoning are of interest mainly to experts in these subjects, and only those clinical and pathological problems which present themselves to the medical practitioner need be discussed here.

A difficulty which occurs at the outset is that of defining what we mean by "acute food poisoning." The term itself is inaccurate, because in many cases we are dealing with food infections, the poisons being manufactured subsequently to ingestion. Yet if we adopt instead the term food infections we exclude definite types and must include such infectious diseases as enteric fever, paratyphoid fever, dysentery, and cholera. These are not generally understood by the expression acute food poisoning, and the term is reserved for acute illness caused by food, due either to introduced chemical substances, toxic bacterial products in the food, or to the ingestion of bacteria which produce in the alimentary tract products causing acute illness. This clearly is not a watertight definition, but covers generally what is meant by food poisoning and excludes the ordinary bacterial infectious diseases.

Causation.

In order to appreciate the significance of the presence or absence of certain bacteria in the specimens examined it is necessary to bear in mind what agents have been incriminated in cases of food poisoning. A convenient classification is based upon the nature of the irritant, and the following varieties may be recognised.

1. Food may be contaminated with comparatively simple chemical substances not of bacterial origin. These include simple chemical poisons like zinc, arsenic, and copper salts, and rather more complex bodies such as the alkaloids. These may gain access to the food by accidents of manufacture such as the use of arsenic contaminated glucose in beer or sweets, by carelessness of usage as when acid foods are cooked in zinc or copper receptacles, or by criminal addition.

2. Poisoning may result from the consumption of foods inherently poisonous or which become poisonous under certain conditions. Mushroom poisoning is the best-known example of this type, but poisonous berries and the tropical poisonous fish are others. Mussel poisoning, according to the latest investigations, is in the class of foods normally sound which, under certain ill-defined conditions in the life of the mussel, become toxic. Cases of mussel poisoning are rare, but a widespread outbreak has recently occurred with mussels obtained from California waters. In all this group the symptoms are due to chemical poisons of highly complex type.

3. The toxic action of certain bacteria may cause poisoning. Three groups are well defined.

(*a*) *B. botulinus.*—This bacillus in its three types causes the peculiar and *rare* condition known as *botulism.*

(*b*) *Salmonella bacilli.*—Members of this group give rise to the commonest and most important variety of food poisoning. This group includes many types, and not all the members can originate food poisoning. Those most frequently found as a cause of this condition are *B. aertrycke* and *B. enteritidis*, but some half dozen other types may also be concerned. Another well-known member of this group, *B. paratyphosus* B, causes paratyphoid fever but never, or at the most extremely rarely, can cause acute food poisoning. These Salmonella bacilli produce toxins which are highly irritant, while they possess the peculiar property of being heat resistant—i.e., they withstand temperatures of 100° C. and above without impairment of their toxicity. In consequence of this property we can recognise two types of poisoning from their action. In the one the food is consumed containing living Salmonella bacilli, with or without much pre-formed toxin. In the other type the food after preparation has been subject to heat treatment, killing living Salmonella bacilli (which have low heat resistance) but leaving unimpaired their pre-formed toxins. The food is sterile, unaltered in appearance, but highly toxic. Outbreaks of this character are most common in connexion with certain canned foods, mainly canned meat, the heat preparation processes killing the living bacilli. It must here be stated that this conception of the origin of the toxins, which represents my own views and experience, is not universally accepted, especially in America. The arguments in its favour and against it were set out at the discussion [1] held at the last meeting of the British Medical Association (Section of Pathology). Of the frequency of these canned food outbreaks associated with a sound, sterile food there is no question; I have investigated, or have notes of dozens of them.

(*c*) *Dysentery bacilli.*—A few outbreaks are caused by strains of this group. The clinical picture is identical with that caused by Salmonella strains, and they require no further mention.

4. Indeterminate bacteria or their products. While detailed studies assign a larger and larger share of food poisoning outbreaks to the known types mentioned above, and particularly to the Salmonella group, there remains a residuum of possibly 25 to 30 per cent. which are at present unexplainable. No doubt other bacteria will be found to be responsible while irritation almost amounting to food poisoning may be associated with many ill-defined substances.

Certain Factors Excluded.

On the other hand it is possible to exclude certain factors popularly accepted as causes of food poisoning. There is no evidence of any value that putrefactive changes in meat or other foods has ever caused an outbreak of food poisoning, although it is probable that the consumption of incipiently putrefactive food might disagree with individuals and cause symptoms of malaise. *B. proteus*, a highly putrefactive bacillus, has often been credited as the cause of food poisoning outbreaks, but in nearly all the instances the so-called evidence is worthless. It is a possibility, however, that strains of special virulence might cause food poisoning, and this bacillus cannot be entirely excluded.

As regards *ptomaines*, these are non-specific toxic bodies produced in any organic matter allowed to putrefy if the processes are allowed to go on long enough. They are late protein degradation products, never found in food until it is far too nasty to eat. They certainly have nothing to do with food poisoning, and the term "ptomaine poisoning" should be relegated to the limbo reserved for unfounded hypotheses. It is not creditable to medical practice that the term is still so frequently met with, even in text-books.

Clinical Problems.

Food poisoning being so ill-defined a condition it is evident that in some cases doubt must arise as to its diagnosis. Obviously, with a chemical agent the symptoms must vary with the nature of the chemical poison, which is sometimes highly unexpected. For

* Part II., on Laboratory Investigations, will appear next week.

[1] See THE LANCET, August 10th, p. 279.

instance, atropine poisoning has resulted from eating meat stuffed with herbs containing belladonna leaves. Most of these *chemical poisons* cause gastro-intestinal irritation, but usually have a shorter incubation period than the poisons of bacterial origin. *Botulism* has a quite peculiar symptomatology since the toxins act on the nervous system and not on the alimentary tract. Except as a transient initial phase diarrhœa and vomiting are absent, indeed constipation is usual. The characteristic symptoms are visual and eye disturbances, throat symptoms, and general muscular weakness; the temperature is generally subnormal. This type has the longest incubation period (18–36 hours as an average). In *Salmonella food poisoning* the brunt of the attack is on the alimentary tract, and acute diarrhœa, severe vomiting, and abdominal pain are almost invariably present, other less prominent symptoms being a rise in temperature, cramps, and subsequent prostration. When living bacilli are ingested the incubation period is often eight hours or longer. The type due to *Salmonella toxins* without living bacilli presents a very definite clinical picture. The incubation period is quite short (2–4 hours), the onset always acute. These gastro-intestinal symptoms are usually severe in type, more so than with living Salmonella bacilli, and are followed almost always by rapid recovery (24 hours or so), the only deaths being in the old, the very young, or those damaged by concurrent disease.

A suspicion of food poisoning may be easy or difficult to confirm. Diagnosis is easy when a number of persons in one household are affected with acute gastro-intestinal disturbance some time after eating a particular meal. The fact that some escape an attack, even if they all consume the same food, does not of necessity invalidate a food hypothesis. In many outbreaks some who have eaten the poisonous food escape. More complex and difficult of diagnosis is the occurrence of a number of cases exhibiting gastro-intestinal irritation symptoms, but irregularly distributed as regards time of occurrence, and not following or not definitely attributable to any particular meal or article of food eaten. Sometimes very detailed inquiry is necessary before it can be shown that some article is infected but perhaps eaten in the family under different conditions—i.e., cooked, stored, &c. A diagnosis has sometimes to be made from influenza of gastro-intestinal type.

A diagnosis of food poisoning may be difficult when a single case is involved. A person, for example, consumes a meal possibly containing articles often associated with food poisoning, and some hours subsequently is taken ill with diarrhœa and vomiting. The sufferer ascribes it to the food, and may then recollect, or more often thinks he recollects, that he noted something "not quite right" about it. Great caution has to be exercised before accepting such an association as one of cause and effect, and all other possible causation factors need to be considered. On several occasions I have known acute peritonitis from a perforated ulcer or other cause diagnosed as food poisoning. Very detailed inquiries should be made as to whether the suspected food was also eaten by other persons, and if they consumed it without harm. It is unlikely that a food consumed by several persons should make only one of them violently ill. An exceptional case is when the whole of one article is consumed by the sufferer, and then laboratory diagnosis is most valuable. For example, I investigated a single case of acute food poisoning caused by the consumption of a Cornish pasty on a railway station, proof being furnished by bacteriological investigation. Many of the single cases of botulism reported in U.S.A. have an interesting explanation. The person preparing the food, usually home-canned vegetables, notices a peculiar smell and tastes a few drops of the liquor; then recognising it is unsound she throws the rest away. The taster thus furnishes the only case.

WILLIAM G. SAVAGE, B.Sc., M.D. Lond.,
Medical Officer of Health for the County of Somerset.

Special Articles.

MEDICINE AND THE LAW.

Criminal Lunatics at Large.

THE Home Secretary was asked last week about the escape from Devizes Mental Hospital of a patient who had been transferred thither a year ago from Broadmoor Criminal Lunatic Asylum. He replied that the Home Office is not officially notified of such an escape; the patient, while under sentences for larceny and false pretences, was certified insane and removed to Broadmoor; when his sentence expired in October, 1928, he ceased to be a criminal lunatic, but, being still insane, was recertified under the ordinary lunacy law and received into the Devizes Hospital. The reference to the ordinary law seems to be to Section 7 of the Criminal Lunatics Act, 1884. When a criminal lunatic is about to be "absolutely discharged" (under Section 5 of the Act) or when his sentence is about to determine, then, if the fact is made to appear to a justice of the peace by notice from the superintendent of the asylum or the governor of the prison, and if "in the opinion of such superintendent or governor such person is insane and unfit to be at large," the justice is to examine the person and make inquiry with the aid of medical evidence and to order his detention as a lunatic if satisfied that the person is insane and ought to be detained under care and treatment.

It does not appear that criminal lunatics are let loose upon the public in large numbers or without adequate discrimination. The Criminal Statistics for 1927 (the last available) show that, of 10 inmates of Broadmoor whose sentences expired in the year under review, only 2 were set at large, the other 8 being ordered by a justice to be removed elsewhere. In the same period 14 were discharged conditionally and 3 cases were readmitted on revocation of conditional discharge. The corresponding figures for the county, county borough and district asylums are as follows:—56 persons were discharged absolutely on the expiration of their sentences; of these only 4 were set at large, one was ordered to be removed elsewhere, and 51 were ordered by a justice to remain in the asylum. The Broadmoor totals of receptions and discharges of criminal lunatics are roughly the same as those for the local asylums put together. Broadmoor received 66 in 1927 and discharged 59; the other asylums received 71 and discharged 63. The Broadmoor total of discharges, however, includes 33 deaths whereas only 2 deaths are recorded in the figures for the local authorities' asylums.

Passports and Kindness.

A medical practitioner was summoned at the North London Police-court on November 3rd for having unlawfully made untrue statements for the purpose of procuring a passport for two men named in the summons. A third man was summoned for aiding and abetting the offence. One of the preliminary steps towards the issue of a passport is that the applicant should produce a declaration in a printed form verified by a declaration made by a banker, mayor, magistrate, minister of religion, barrister-at-law, physician, surgeon, solicitor or other accepted person of official or professional status. The medical practitioner in the Islington case had signed a declaration stating that he had known the two applicants for two years and could vouch for them as fit and proper persons to receive passports. The truth, according to the representative of the Director of Public Prosecutions, was that the two men had been living for only a couple of days in apartments in Upper Rathbone-place. They mentioned to their landlady's husband that they wanted to obtain passports to go abroad; he took them to his doctor and asked him to sign their applications. The

landlady's husband had been known to the doctor for about 10 years and was a patient of his. He gave an assurance that everything was all right, and the doctor signed without reading the cautionary remarks at the top of the printed form. The doctor merely wished to oblige his patient; he had no knowledge of his past life. Unfortunately, the landlady's husband—it was stated at the police-court—had spent nearly five out of the past ten years in prison and was therefore regarded by the authorities as hardly a suitable person to recommend anyone for a passport. The magistrate, drawing attention to the serious consequences of an act of thoughtlessness, dismissed the summons against the medical practitioner on payment of five guineas costs. The landlady's husband, who had aided and abetted the offence, was sentenced to four months' hard labour. There is no need to exaggerate the effect of incidents of this nature. Public opinion did not instantly clamour that the medical profession, having been found unworthy of its responsibilities, should be denied the privilege (such as it is) of certifying the truth of passport declarations. It is, however, well to remember that this kind of certificate is amongst those expressly mentioned in the General Medical Council's "Warning Notice," and that a registered practitioner who thus signs anything which is "untrue, misleading or improper" is liable to have his name erased from the Medical Register. The poet has praised kind hearts and simple faith, but the kind-hearted practitioner at Islington would not have suffered for the simplicity of his faith if he had taken the precaution of reading the document to which he was invited to attach his signature.

THE MOUNT VERNON HOSPITAL, NORTHWOOD.

A NEW SCHEME FOR INVESTIGATING MALIGNANT DISEASE.

RUMOURS of an alteration in the scope of the Mount Vernon Hospital have been current for many months. The details of the reorganisation which are now made public involve the deflection of its activities, formerly directed to the treatment of tuberculosis, towards the investigation and treatment of malignant disease.

The reasons which have made this change desirable are of considerable importance to all concerned with voluntary hospitals, their history and their future.

The Reasons for the Change.

The hospital was established in 1860 as the North London Hospital for Consumption. At first it dealt only with out-patients at a dispensary in Tottenham Court-road. The venture proved popular, and a house in Belsize Park was converted to form an in-patient department. Towards the end of last century land was acquired at Mount Vernon, near Hampstead Heath, and the hospital built thereon became known as the Mount Vernon Hospital for special purpose of determining the value of the open-air treatment of tuberculosis, at that time in its infancy. The facilities for the treatment of tuberculosis by local authorities have now, however, been so greatly extended that every county has its own sanatorium, and the number of patients desiring to enter the Mount Vernon Hospital has greatly diminished. By 1927, indeed, it had become obvious that only those patients were applying for admission who were in so advanced a stage of the disease that they were regarded as unsuitable for treatment elsewhere. It was therefore decided to divert the activities of the hospital to the investigation and treatment of malignant disease. This decision was approved by the Ministry of Health, the British Empire Cancer Campaign, and the Medical Research Council, and the hospital buildings were temporarily closed and reconditioned at a total cost of about £16,000. An Act of Parliament was required to enable the council of management to apply the lands and investments of the hospital to new objects, and this Act was passed on May 10th of this year.

Aims of the Hospital.

The hospital is now to be devoted to research into the cause and treatment of malignant disease. The first line of research is to be the investigation of

Aerial view of the hospital and outbuildings.

[*Central Aerophoto Co.*

pulmonary diseases, the heart, and diseases and affections of the joints. These premises were taken over by the Medical Research Council in 1913 and now form the laboratories of the National Institute for Medical Research.

In 1904 land at Northwood, Middlesex, amounting to nearly 100 acres, buildings, and equipment were given by the late Mr. Charles Dunell Rudd for the treatment by radiotherapy; if, in the future, any other form of treatment shows better promise, then this in turn will be tried on a large scale. In addition to clinical investigation, laboratory research will be carried out in a special building. The investigation of radiological treatment will include radium therapy by needles and surface application, and X rays.

Although the Enabling Act was passed less than six months ago a considerable amount of work has already been carried out, and 159 cases of malignant disease have passed through the hospital. The radium for these cases has been obtained by loan from other hospitals and from private supplies owned by members of the staff. Much more must be available, and, as a beginning, half a gramme has been ordered for the hospital in the form of needles, and the first instalment has recently arrived. In order to carry out the work efficiently on 1500 patients per annum this supply will have to be augmented by 2½ grammes. For X ray treatment at least two sets will be necessary.

The long south frontage, with terrace and balconies.

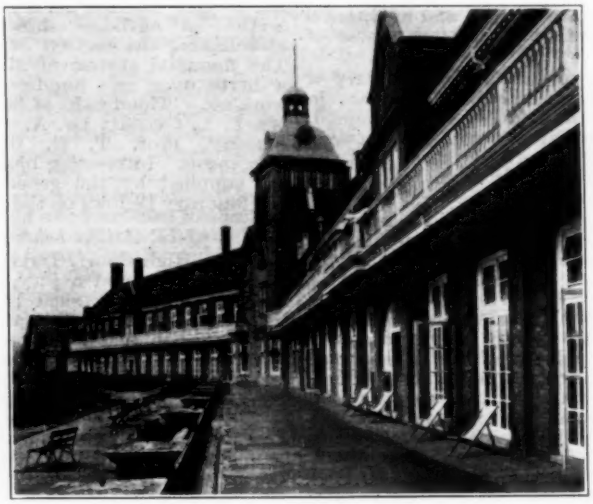
Follow-up Department.—The results of treatment will be carefully recorded on special forms and diagrams and the patients seen at frequent intervals for years after treatment has ceased. In connexion with the follow-up department notes will be taken down in shorthand of every examination. The existing London section in Fitzroy-square will be the centre for diagnosis and for the follow-up examinations, and it is hoped that the railways may give special facilities of travel to the patients.

Medical Staff.

The members of the honorary medical and surgical staff who are remaining on the staff under the new conditions include Dr. J. F. Halls-Dally, Dr. R. Fielding-Ould, Mr. D. C. L. Fitzwilliams, Mr. C. E Shattock, Mr. P. J. Jory, Mr. H. Robinson, Dr. J. E. A. Lynham, Dr. Percy Hall, Dr. M. Weinbren, and Mr. J. G. Fernie. New appointments include Lady Barrett, Mr. Stanford Cade, Mr. Malcolm Donaldson, and Mr. Geoffrey Keynes.

The medical and laboratory investigations in the hospital are to be carried out by the staff acting as a *team*. The term of office of each member of the honorary staff is to be for one year only with eligibility for re-election, the term of office being entirely subordinate to the research interests. The members of the staff are not given proprietary rights over a definite number of beds, because it may be advisable from time to time to alter the proportion of admission of patients suffering from any particular type of cancer. The additional members of the medical staff appointed since the reorganisation of the hospital have been chosen from different hospitals because of their interest and experience in the radiological treatment of malignant disease. A whole-time pathologist will be appointed immediately and in the near future a physicist and a whole-time radiologist. It is also part of the original scheme that a medical director shall be appointed to lead the team and coördinate the work. This post would be an important whole-time one with security of tenure for several years.

It is hoped that keen research workers in cancer will gravitate to the hospital from all parts of the Empire. Clinical assistants will be appointed and courses of instruction in radiotherapy will be arranged.



A near view of the terrace.

Advisory Committee.

This committee is a new departure in hospital organisation and its duties may be summarised as follows: To advise the Council of Management upon the staffing of the hospital. To advise the Council of Management upon all medical and scientific matters. To suggest the forms of therapy and research which should be undertaken in the hospital.

The present members of this Advisory Committee are Dr. A. E. Barclay, Dr. G. E. Birkett, Dr. R. G. Canti, Prof. C. C. Choyce, Mr. W. D. Harmer, Prof. F. L. Hopwood, Sir Thomas Horder, Prof. E. H. Kettle, Mr. H. S. Souttar, and Sir Charles Gordon Watson, and other members will be coöpted shortly. Half the original members will retire at the end of three years, but in the future members of the Advisory Committee will have a tenure of office for four years, with eligibility for re-election after an interval of one year.

Accommodation and Equipment.

The hospital provides for 150 beds, and this accommodation should give a minimum turnover

of 1500 patients per year. The building consists of:—

(*a*) Fourteen single-bed wards, ten 10-bed wards, two 18-bed wards.

(*b*) An operating theatre. A new theatre block to contain two complete operating suites is to be built.

(*c*) An X ray installation for diagnosis, which will be enlarged and brought up to date.

(*d*) A pathological laboratory. This will be used as temporary accommodation until the new block of research laboratories has been built.

(*e*) Various rooms and offices for the accommodation of the matron and resident staff.

(*f*) At either end of the main building are two very large rooms; one of these will be reconstructed to house the deep X ray therapy department, the other will be used for the officers of the follow-up department.

(*g*) A central hall.

There is a separate nurses' home and a block of buildings containing boilers, electric light plant, laundry, &c. On the west side of the hospital are the foundations of a new wing, which, when completed, will accommodate 100 additional beds, a proportion of which will be reserved for paying patients.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

New Departure in Scottish Research.

A NEW departure of the first importance has taken place in Scotland. A few years ago, when Major Elliot was Under Secretary of State for Scotland, an effort was made to get the official organisation for medical research onto a more satisfactory footing. One of the immediate results of this effort was the well-known experiment—financed by the Empire Marketing Board—on the value of milk as a food for school-children. The organisation established at the time will now be superseded by something much more comprehensive and better adapted to enable the Scottish departments, universities, colleges, and institutes to keep touch with each other and with the local authorities and to make medical and nutritional and related research a continuous accompaniment of administration.

Mr. Tom Johnston, the present Under Secretary of State, recently held a representative conference in Edinburgh. The object of the conference, he explained, was to set up a permanent liaison committee between research bodies and local authorities to see that the results secured by research institutions should be speedily made available to the public.

It is hoped that, at last, Scotland will receive her proportional official share in the work of the Medical Research Council and that the full functional use will be made of the official medical and general scientific staffs of the Departments to investigate the many problems that emerge in the course of health administration. The Departments are to be congratulated on the step taken by Mr. Johnston. The presence of Sir Walter Fletcher's name on the liaison committee, elected at the close of the meeting, indicates that the new development is a natural expansion of the working organisation of the Medical Research Council, of which he is secretary. The other members of the Committee are: Dr. J. P. Kinloch (Chief Medical Officer, Department of Health for Scotland); Dr. J. B. Orr (Director of the Rowett Research Institute, Aberdeen); Sir Robert Greig (Secretary of the Department of Agriculture for Scotland); Prof. T. P. Cathcart (Glasgow University and Hannah Dairy Research Institute); Prof. F. A. E. Crew (Edinburgh University, Animal Breeding Research Department); Dr. T. J. Mackie (Professor of Bacteriology, Edinburgh University); and Mr. John Jeffrey (Secretary of the Department of Health for Scotland). Dr. Kinloch is to be chairman of the Committee.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Irish Free State Medical Registration Council.

THE half-yearly session of the Irish Free State Medical Registration Council was held in the College of Science on Nov. 5th, 1929, the president, Dr. D. J. Coffey, presiding. The president made a statement, in the course of which he pointed out that the privileges of registration—the exclusive right of registered practitioners to give legal certificates, to claim fees in the courts, and to fill public medical appointments—had been in operation since May 26th, 1928. The Council, he said, cordially appreciated the fact that a large number of Irish-trained medical men permanently resident out of Ireland had manifested their interest in the establishment of the Register by taking the necessary steps to include their names.

Death of Dr. Frank Dunne.

Dr. Frank Dunne, of Dublin, died last week after a brief illness. He graduated as M.B. of the Royal University of Ireland in 1891, and was for many years visiting physician to the Consumptive Hospital of the Dublin Union, and also to the Allan A. Ryan Home for Consumptives. He was much interested in the treatment of tuberculosis, and did a considerable amount of work with Denys's tuberculin, which he brought before the notice of the profession in Ireland. During the war he joined the Royal Army Medical Corps, and served in Egypt for some years. He was a careful and observant physician, a man of wide general culture, and of great kindliness of character. His death is greatly regretted by his professional brethren, and also by his large class of sick poor whom he tended with skill and humanity.

Royal Academy of Medicine in Ireland.

The annual report of the Royal Academy of Medicine in Ireland for 1928–29, which was circulated a few days ago, shows a slight increase in the number of Fellows and Members, 258 compared with 245 in the previous session. Twenty-seven national meetings were held, with a total attendance of 1091, the largest number recorded for some years. The section of medicine showed the highest average attendance, the section of obstetrics coming next. The financial statement shows an improvement of a little over one hundred pounds on the year's working. The deaths of five Fellows are recorded—Mr. L. L. Cassidy, Dr. A. J. R. Dungan, Dr. W. A. Fogarty, Prof. T. E. Gordon, and Sir W. J. Thompson. Interesting biographical notices of these are supplied by the general secretary. There are 22 Honorary Fellows on the roll of the Academy.

Libel Action between Medical Men.

In the High Court, Dublin, last week, before Mr. Justice Hanne and a jury, Dr. H. V. McKeogh, of Killaloe, Co. Clare, sued Dr. P. J. Holmes, also of Killaloe, for alleged libel and malicious persecution. Dr. McKeogh had been prosecuted last year on a charge of attempted blackmail on the information of Dr. Holmes, the case ending in acquittal. The alleged libel had been contained in a letter written by Dr. Holmes to a solicitor acting for a third party. The jury found for the plaintiff in respect of both claims, assessing damages at £200 for libel, and £500 for malicious persecution.

The Robert Campbell Oration.

The Robert Campbell Oration for 1929 was delivered in the Medical Institute, Belfast, on Nov. 8th, by Prof. Andrew Fullerton. Mr. Howard Stevenson, President of the Ulster Medical Society, was in the chair, and was supported by Sir Thomas Houston. There was a large audience, widely representative of the medical profession in Ulster, and including Mrs. Robert Campbell and many of the late surgeon's intimate friends. After an eloquent and particularly

apt appeciation of the late Mr. Campbell's life and work, the orator reviewed the progress of urology from ancient to modern times, paying a striking tribute to the work of Harry Fenwick in England and H. H. Young in America. An interesting series of lantern slides illustrated the lecture. A vote of thanks was proposed by Prof. Thomas Sinclair, seconded by Dr. James Moore, and carried with enthusiasm.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Congress of German Medical Historians.

THE German Medical History Society held its annual congress this year in Budapest. The occasion was taken to unveil a statue of Semmelweis built in the Elisabeth park in the centre of the city. Foreign speakers gave full recognition to the pious work done by Tibor Györy, professor of medical history at the University of Budapest, in collecting together the works of Semmelweis, and in throwing light on the question of the priority of his famous discovery.

Of the scientific communications to the Congress the most noteworthy was a lecture delivered by Prof. Sudhoff, the president, who described the results of his investigations into medical science as taught at the Arabian Toledo and Salamanca schools, and showed how this knowledge was linked with that developed in the Southern French and Italian universities. Among the other speakers Dr. I. Fischer (Vienna) exhibited a biography of Hippocrates, hand-written by Johannes Cuspinianus (1473–1529); Dr. Else Haberling (Düsseldorf) recalled the early methods of training midwives in Germany; Prof. W. Haberling (Düsseldorf) gave an account of horse riding, as a method of treatment popular in the classic age. Prof. Koch, of Frankfort, urged in his address the closer linking of medical history with medical training; L. Englert read a paper with the title "The Early History of Humoral Pathology"; and O. Temkin (Leipzig), lectured on Celsus and the Roman medical sciences.

In conjunction with the Congress a medico-historical exhibition was arranged by Joseph Ernyei in the Industrial Art Museum.

Articles by Doctors in the Lay Press.

The Press Committee of the Budapest Medical Association, having in mind recent publications on medical subjects in lay journals, warns all doctors that, though it is desirable that scientific instruction on matters of health shall appear in the daily papers, it is objectionable to exploit such articles for advertising purposes. The Ministry of Public Hygiene has shown the way to write such articles, by publishing serial notes dealing with the summer mortality of infants and the prophylactic measures designed to lower it. Caution in publishing scientific articles in the daily papers is advised, because such publications, particularly if the writer gives advice on treatment over his name, may bear the character of an advertisement. The Press Committee investigates all such articles and proposes in the future to deal rigorously with them according to the regulations of the Medical Association. Medical men are invited to submit their articles in the first place to the Press Committee, who will endeavour to place suitable manuscripts in respectable journals.

The Number of Practitioners in Hungary.

According to the latest statistical returns the number of medical practitioners in Hungary amounts to 6442, the ratio to the population being 1 : 1265. Almost half of the doctors reside in Budapest, so that the ratio in this city is 1 : 365, resulting in a keen struggle for existence, whereas there are over 2000 villages without a doctor. The number of medical students at the University of Budapest in the session 1928–29 was 1418, including 90 women, the number of students of pharmacy being only 213. The number of doctors qualifying during the year was 307; this is regarded as far too many, since the demand at present is almost nil.

The Ascertainment of Physical Defectives.

Mr. Eugen Pintér, member of the Chamber of Deputies, has proposed a scheme for the ascertainment of physical defectives, since it is the duty of the State to provide for their treatment and to educate them to be self-supporting, as well as to maintain those incapable of earning a living.

In order to obtain reliable statistics Dr. Michael Horváth, professor of orthopædics, will tour the country, and will give lectures to doctors, magistrates, and interested laymen. When the data have been collected the organisation of training centres will be undertaken. Institutions combining hospitals, schools, and workshops, staffed respectively by surgeons, teachers, and foremen, will have to be provided, but this will take time.

The work cannot be launched simultaneously through the country; Mr. Pintér suggests that the institutions first established should be in the vicinity of the four universities. The State can make a start by ascertainment but the organisation will require moral and material support from the whole community if it is to be a lasting success.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

Medical Education and Registration.

THE proposal by Government for a grant of Rs.39,000 for the appointment of an officer of the Indian Medical Service to supervise medical education in India was vigorously opposed in the Assembly at its meeting on Sept. 25th. Discussion was still in progress when the House adjourned and the proposal is shelved until the Delhi session. The General Medical Council is bound to insist on a certain standard of proficiency before granting recognition of degrees granted in India—or anywhere else for that matter; if India consistently refuses to attain to this standard her degrees will, we fear, go unrecognised.

The Congress Party intends, we understand, to introduce in the next session of the Bengal Legislative Council a Bill to amend the Bengal Medical Act No. 6 of 1914 so as to "vest the Bengal Council of Medical Registration with wider powers and free it from Government control." One of the most important clauses in the proposed Bill aims at controlling the State Medical Faculty, the governing body of which is at present nominated entirely by Government.

A New Disease in Bombay.

Sixteen cases of a peculiar disease, the intimate nature of which has not yet been discovered, have appeared in Bombay since April last. Of these seven have proved fatal, and St. George's Hospital was closed for 11 days in September to allow of complete disinfection following the treatment of the cases. Subsequent events seem to have ruled out the possibility, suggested a few months ago, that we are dealing with examples of Dukes's "fourth disease," and opinion appears to be veering in the direction of a streptococcal infection similar in type to malignant scarlet fever. Research into the ætiology is in progress at the Haffkine Institute, Parel, but no definite conclusions have as yet been reached.

The Simla Municipality, at its meeting on Sept. 27th, discussed the question of medical inspection of passengers entering Simla, as a precautionary measure against the importation of infectious diseases. After a lengthy debate the committee decided to ask the

Punjab Government to set up permanent accommodation for a medical inspection staff at Tara Devi.

After a stormy career, Mr. Sarda's Child Marriage Bill, designed to prohibit the marriage of girls below the age of 14, was passed by the Assembly on Sept. 23rd by 67 votes to 14. Despite the fact that eight Moslem members protested against the Bill by walking out of the Chamber it is recognised on all sides that the measure is one of the greatest national importance.

Public Health Services.

SCHOOL MEDICAL SERVICE.

Name of district.	No. on roll.	Average elementary school attendance.	No. of routine children examined.	No. of special examinations and re-inspections.	Percentage of children found on routine examination requiring treatment.†
Taunton ..	2784	2592	964	2571	16·0
Torquay ..	3841	3336	1264	5191	20·1
Dover.. ..	—*	5371	2028	3999	8·8
County of Cambridge	9770	8580	3573	6455	7·7

* Not given. † Excluding dental defects and uncleanliness.

Taunton.

THE borough has two features which, in some respects, tend to facilitate the work of caring for the children. It is the administrative centre for Somerset, and therefore use can be made of facilities provided by the county council; the county orthopædic clinic, for instance, is held in the school clinic at Taunton and is available for the infants and the school-children of the borough. A similar arrangement holds at the tuberculosis dispensary. Both the orthopædic and antituberculosis work are greatly aided by voluntary local agencies. Coördination of all the health services is complete, since Dr. John Allen combines the duties of medical officer of health and school medical officer, besides directing the work of the maternity and child welfare scheme. He deals with children employed in entertainments, and cites as examples of the need for careful supervision over these children, that one of their "matrons" considered it not unreasonable for these children to sleep in one bed, and another thought there was no objection to a boy of 14 sleeping in the same room as adult females. The small number of exceptional children makes it more difficult to provide special schools, and consequently there is none. Dr. Allen says there are 32 feeble-minded children attending ordinary schools where "they can obtain little or no benefit from the education provided," and that it would be greatly to their advantage if special classes could be arranged in two schools, with education suitable to their capacities. There would also seem to be a need for the provision of an open-air school as there are 34 "delicate" children and several others who could well attend these. At some other towns with but little larger numbers of children the open-air school is doing excellent work.

Torquay.

In his introduction to the detailed report on school medical work Dr. T. Dunlop remarks that the personnel of the staff is the same as in 1926–27, and that such continuity of service tends to greater efficiency in the work. Dr. J. V. A. Simpson has carried on the school duties for a succession of years and is also in charge of the maternity and child welfare centre, so that he sees the same individual as a baby, a school entrant, and as an older child about to leave school. Such continuity, in the double sense, is of special value in promoting what he obviously has at heart, the steady inculcation of habits of health. If, in the words of Matthew Arnold, "Education is an atmosphere, a discipline, a life," Dr. Simpson holds that the part which the school medical service plays in it "may be small, but it is important." The qualifying phrase seems to us unduly modest; this service is of immense importance, its greatest value lying not in its curative work, but in the education in hygiene which it carries out in coöperation with the teachers. Dr. Simpson himself admits this when he remarks that mothers get to appreciate the early signs of defect and come to the welfare centre because the elder brother or sister at school has been successfully treated. Again, when congratulating the authority on improvements in the hygiene of school buildings (largely as the result of his long and painstaking researches with the kata-thermometer), he emphasises its far-reaching significance, for not only does it react sharply on the health of the individual, but it is in itself an education for the pupils—a knowledge which will be applied later in their own homes. He is still more emphatic about the true use of an open-air school, which is to teach the child how to keep well by the observance and practice of a healthy way of life. It needs, he is satisfied, something more than a casual effort to ensure that a child has in all respects a sound general upbringing, but it is within the scope of human achievement.

Dover.

In his introduction Dr. A. B. McMaster says the publication, sanctioned by his committee, of the school report in one volume with that of the public health gives greater facilities for comparing the various sections of the work. The range of this work is especially wide in Dover, which is a town with the usual schools, a seaside resort, and a port with a military quarter. The maternity and child welfare work is being further developed, greater use being made of the beds provided at the Royal Victoria Hospital; the rate of maternal mortality is only 2·6 per 1000 this year. At the welfare centre 442 children were treated, and it is noteworthy that of 24 infants with ophthalmia, all retained unimpaired vision. The approval of the Ministry has been obtained for a scheme for orthopædic treatment of children under five, which will in time reduce the number to be dealt with at school age. The need for early treatment generally is illustrated by an analysis of 30 cases of convergent squint, which shows that in 14 the vision of the affected eye had become 6/60 or worse. Much useful work on refractive errors was again done at the ophthalmic clinic, when glasses were prescribed for 94 per cent. of those who attended, and of these 84 per cent. obtained them. Dental conditions appear to be generally good; attendance increased and extractions of permanent teeth diminished, while 38 per cent. of the children have sound teeth. "There is, unfortunately," writes Mr. F. Constant, L.D.S., "a small percentage of children with septic mouths, whose parents refuse year after year, despite appeals and interviews, to allow to be treated. To save these children suffering and perhaps permanent ill-health, it is a question whether some judicious pressure should not be brought to bear in the more serious of these cases." Dr. McMaster has used his influence against expenditure on a water-softening scheme, which as he shows is not necessary for health, and money is wisely being spent in other directions, such as the new school in Astor Avenue, which in many ways comes near to the ideal.

County of Cambridge.

Dr. F. Robinson's area is entirely rural in character, and this feature affects result sand methods in many directions. In rural areas the child population tends to be less physically defective than that in many of the towns, while ascertainment is carried out with greater difficulty; it is therefore not surprising that

the percentage of defects found is much below the average for England as a whole. The travelling dental clinic, adopted early in this county, appears to be yielding good results; for example, the proportion of children found to need dental treatment in 1928 was only 40 per cent., compared with 65 per cent. in 1914. The percentage was even lower in 1922, and Mr. J. C. Evered, L.D.S., suggests an interesting explanation. The greatest crop of dental cases occurs at 7, so it would be especially the children born in 1915 who would affect the figures. Now whereas in central European countries the nutrition of the children suffered severely at that time, the opposite was the case in this country, perhaps on account of high wages and separation allowances. Hence it may be that better nutrition in infancy produced teeth more resistant to decay. In 1928 the percentage of refusals was lower by 1·7 per cent. than last year, an improvement to be attributed largely to the enlightenment of the parents, for which special efforts have been made at the welfare centre and the women's institute, good use being made of cinema films. In this type of area it is not surprising that the establishment of an orthopædic scheme will need an orthopædic surgeon to visit several local centres in turn, and an orthopædic nurse to travel about constantly. In country districts the new grouping of schools makes the provision of meals specially important, and a good account is given of plans to cope with the difficulty; special mention is made of what is done at the Bassingbourn Council School, where a good dinner is provided at a cost of 2½*d*. A few children whose nutritional state is so bad as to prejudice their education are sent to residential open-air schools. Owing to the scattered nature of the district no special nursery schools have been established. There has been a striking improvement in cleanliness, very satisfactory for a rural area; only 4 per cent. of the school-children were found to be not clean. There should, says Dr. Robinson, be a still further reduction in future years, as the girls grow to the age of motherhood who have become familiar with the problem through the scheme of school medical inspection. The same thought for coördination and continuity is evident in the lectures to mothers and in the extension of treatment of squint to the infants under the care of the health visitors.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 2ND, 1929.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 168 (last week 131); scarlet fever, 3487; diphtheria, 1748; enteric fever, 83; pneumonia, 979; puerperal fever, 42; puerperal pyrexia, 96; cerebro-spinal fever, 4; acute poliomyelitis, 20; acute polio-encephalitis, 4; encephalitis lethargica, 15; dysentery, 7; ophthalmia neonatorum, 108. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the Metropolitan Asylums Board on Nov. 5th–6th was as follows:—Small-pox, 173 under treatment, 8 under observation (last week 172 and 12 respectively); scarlet fever, 2763; diphtheria, 2537; enteric fever, 97; measles, 271; whooping-cough, 121; puerperal fever, 25 (plus 16 babies); encephalitis lethargica, 124; poliomyelitis, 9; "other diseases," 22. At St. Margaret's Hospital there were 12 babies (plus 8 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 7 (1) from enteric fever, 20 (4) from measles, 7 (0) from scarlet fever, 15 (1) from whooping-cough, 39 (6) from diphtheria, 102 (30) from diarrhœa and enteritis under two years, and 40 (9) from influenza. The figures in parentheses are those for London itself.

The deaths from enteric fever outside London were reported from Wood Green, West Bromwich, Grimsby, Wigan, Doncaster, and Newcastle-on-Tyne, 1 each. Liverpool still reports 11 deaths from diarrhœa, Manchester 8, Birmingham and Hull 5 each.

The number of stillbirths notified during the week was 252 (corresponding to a rate of 39 per 1000 births), including 38 in London.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt. J. Hamilton to be Surg. Lt.-Comdr.

The following appointments have been made:—Surg. Comdrs. W. W. D. Chilcott to *Emperor of India;* H. B. Parker to *Hawkins;* W. C. Carson to *Vulcan;* J. M. Horan to *Delhi;* M. S. Moore to *Lucia;* and G. B. Cockrem to *Vivid*, for R.N. Barracks, Devonport. Surg. Lt.-Comdr. (D.) R. J. M. Andrews to *Vivid*, for R.N. Barracks, Devonport. Surg. Lts.; C. Keating to *President*, for three months' post-graduate course; R. C. Foster to *Vivid*, for R.N. Hospital, Plymouth; R. H. Dummett to *Vivid*, for R.N. Barracks, Devonport; and J. B. Douglas to *Hawkins.*

ROYAL NAVAL VOLUNTEER RESERVE.

Surg. Sub-Lt. W. Greaves to be Surg. Lt.

ROYAL ARMY MEDICAL CORPS.

The undermentioned Capts. to be Majs.: Bt. Maj. R. E. Barnsley, J. R. N. Warburton (and remains secd.), W. L. E. Reynolds, A. Mearns, A. E. Richmond, and T. B. H. Tabuteau.

TERRITORIAL FORCE.

Maj. T. H. Oliver resigns his commn.

Capt. O. G. Misquith to comd. 7th (Southern) Hygiene Co.

Capt. E. H. Mayhew, having attained the age limit, relinquishes his commn. and retains his rank.

Lts. J. Kerr and E. R. C. Walker to be Capts.

E. M. R. Frazer (late Offr. Cadet, Edinburgh Univ. Contgt., Sen. Div., O.T.C.) to be Lt.

ROYAL AIR FORCE.

W. S. Stalker is granted a temporary commission as a Flight Lt.

Flying Offrs. Leo O'Connor, A. L. St. A. McClosky, and Ronald Thorpe are promoted to the rank of Flight Lts.

Flight Lt. (Acting Squadron Leader, Hon. Wing Commander) J. N. MacDonald is promoted to the acting rank of Wing Commander, with pay, whilst so employed.

Flying Offr. E. A. Wilson relinquishes his short service commission on account of ill-health.

Flying Offr. V. G. Pedley (Temp. Lt., General List, Army, Dental Surgeon) relinquishes his temporary commission in the R.A.F. on completion of service.

INDIAN MEDICAL SERVICE.

Lt. Thaku Chuharmal Ramchandani to be Capt. (prov.).

Lt.-Col. J. Forrest retires.

The undermentioned relinquish their temp. commns.: Temp. Capts. Hari Krishna Datta and Shiv Shanker Gupta, and Temp. Lt. Ellamana Siva Rama Menon.

COLONIAL MEDICAL SERVICES.

The following appointments were made during October: Dr. F. D. Gillespie, Dr. H. Scrimegeour, Dr. J. H. Strahan Dr. T. F. Strong, and Dr. S. N. Swift, Medical Officers, Federated Malay States; Dr. C. E. Hagenbach, Medical Officer, Malayan Medical Service; Dr. W. S. Smith, Medical Officer, Gold Coast; Dr. H. S. R. Broadbent, Medical Officer, Kenya; Dr. A. R. Cox, Medical Officer, Northern Rhodesia; Dr. Peaston, Medical Officer, Sierra Leone; Dr. D. Russell, Assistant Medical Superintendent, Mental Hospital, Singapore; Dr. J. J. Black, Dr. R. I. Hyder, and Dr. G. A. T. Jones, Medical Officers, Uganda; and Dr. R. Ramsay and Dr. P. B. Wilkinson, Medical Officers on the West African Medical Staff.

PRESENTATION TO A MEDICAL MAN.—Dr. Robert Fell, who has been the senior anæsthetist at the York County Hospital for 20 years and who has lately retired from the active staff, was entertained at dinner last week by his colleagues. Dr. W. A. Evelyn, senior physician to the hospital, was in the chair, and after dinner Dr. Fell was presented with a silver salver.

Correspondence.

"Audi alteram partem."

THE MEDICAL REGISTER.

To the Editor of THE LANCET.

SIR,—Voting papers in connexion with the election of Direct Representatives are being issued on Thursday, the 14th inst., to all practitioners having registered addresses in England and Wales. Any such practitioner who does not receive a voting paper, whether he wishes to vote in the election *or not*, should immediately communicate with the office in order to ascertain that his address is correctly entered in the Register.

I am, Sir, yours faithfully,

NORMAN C. KING,
Registrar, General Council of Medical Education and Registration of the United Kingdom.

44, Hallam-street, Portland-place, London, W.,
Nov. 12th, 1929.

VACCINATION OR INOCULATION AGAINST SMALL-POX?

To the Editor of THE LANCET.

SIR,—In your issue of Nov. 2nd Dr. H. T. Gillett asks whether any experiments are being done on the production of immunity by killed vaccinia virus. In the same issue Dr. S. P. Bedson points out that I am conducting an investigation here into this question. This work has the approval and assistance of the Ministry of Health. My research is, at present, in its earliest experimental stage and few conclusions can be drawn from it. The majority of the experiments have been done on rabbits and have proved very discouraging but, recently, experiments with guinea-pigs have given more hopeful results. These findings are in accord with those of Iwanoff who also found guinea-pigs easier to immunise than rabbits.

With reference to your editorial comment upon Dr. Gillett's letter I cannot see that, should a method ever be evolved for protecting man against variola with killed virus, this would require a stock of real small-pox virus. The viruses of vaccinia and small-pox are immunologically identical and mutually protective, and the killed vaccine would be made from the former virus just as is the living vaccine in present use.

I would add to your list of virus infections from which a killed vaccine confers immunity yellow fever, against which both formolised and phenolised viruses are effective, and fowl-pox from which even a heat-killed virus provides immunity. The length of your list reinforced by my additions strongly suggests that the production of immunity by killed vaccinia virus only awaits the discovery of the correct technique.—I am, Sir, yours faithfully,

JOHN BLAND,
Freedom Research Fellow.

Hale Clinical Laboratory, London Hospital, E.,
Nov. 7th, 1929.

To the Editor of THE LANCET.

SIR,—The suggestive and valuable Observations on Vaccination by Dr. Bedson, and the letter from Dr. Gillett, both of which appeared in your issue of Nov. 2nd, indicate the need for the elaboration of a method of vaccination which will be devoid of the inconvenience unavoidably associated with the technique so far employed. At present we are engaged in an investigation of the question raised by Dr. Gillett—viz., the (possible) production of immunity against small-pox by inoculation of killed vaccinia virus. This work is being conducted on behalf of the Medical Research Council and is a natural corollary of our observations already published in Special Report Series No. 143 of that body.

The necessary preliminary to the production of immunity against small-pox is that it must be shown that the immunisation by vaccinia virus which has been rendered innocuous will protect against living vaccinia virus, and in this we have met with considerable success. One point must be stressed—namely, that if a living virus is used for immunising, only a small dose may be required, the immunity really being developed by reproduction in the tissues of the virus inoculated, whereas with a dead virus very much larger doses may be necessary. It is not possible to standardise a living virus unless in terms of infectivity for some laboratory animal—always an uncertain method—while it is not difficult to standardise, in the physical sense at least, the dose of the killed virus; on the other hand, such physical standardisation must be correlated with physiological activity.

Our observations are not yet sufficiently numerous to permit of a definite statement being made, but the indications so far obtained from our work are that a living virus, after modification in vitro without the employment of either antiseptics or heat, may fulfil the required conditions, these conditions being adequate protection unaccompanied by untoward local reactions or danger of post-vaccinal sequelæ.

We are, Sir, yours faithfully,

W. J. TULLOCH.
J. CRAIGIE.

Bacteriological Department, University College, Dundee,
Nov. 5th, 1929.

THE CRAFT OF SURGERY.

To the Editor of THE LANCET.

SIR,—Though I have left the profession I have not lost my interest in medicine, and my experience in the war certainly increased this interest; I hope, therefore, I shall not be considered presumptuous if I say something about surgery, considered as a craft, and even make some suggestions. Surgery is a craft, a very skilled craft, requiring much natural ability and practice in its leaders, the surgeon being the principal craftsman in the medical profession, who is called on to act, when action is considered necessary. That he is much more than a craftsman hardly needs stating. The uses of surgery are increasing every day, and good surgeons are required all over the Empire; and no medical man out of touch with a large town can ever be exempt from being called on to operate; it is becoming more and more important that every medical student should be trained in the craft of his profession.

Is this craft constantly and systematically taught, for it certainly was not in my day? The surgeon's craft, owing to the fact that the work is done on living bodies, does not exactly correspond to any other, but it is closely allied to others. The instruments of surgery, though to-day very numerous, largely consist of forms of knives, saws, scissors, forceps, drills, chisels, files, hammers; screw-drivers, and needles and thread. These form in varying forms the tools of other crafts, such as carpentry, stone cutting, leather cutting and sewing, and upholstery. It would not therefore be very difficult to find masters to teach what may be called the fundamental use and upkeep of these tools, the pupil practising upon the various materials. I feel safe in saying that a course of stone cutting, even if it only consisted of lettering under, say, Mr. Eric Gill, the sculptor, would be useful to the future orthopædic surgeon. This constant practice of the hand would give a confidence to the young surgeon, which in my day he had to acquire chiefly on the living body, besides being a great relief from the reading of books. No one can cram up a craft, so that the good man would feel he could not fail in this part of his examination, while the poor craftsman would be told by his instructors that he had no chance. Even in the Final Fellowship Examination in the 'eighties, the test of skill in operating did not keep out the "butter fingers."

The born surgeon, though he probably would be the first to take advantage of this kind of instruction, can look after himself, for he can pick up what he wants anywhere; but there are not enough born surgeons to go round, and the more ordinary man must be taught the craft of surgery in exactly the same way as a carpenter or stone cutter is taught his particular craft, by learning the use of his tools under a good instructor. In one branch of medicine, dentistry, the necessity of high-class craftsmanship is well understood, and ingenious methods have been devised to teach the student the use of his hands. Dissecting would form a useful link between fundamental craftsmanship and operating first on the dead then on the living.

We are not naturally accurate, we make ourselves accurate because necessity drives us. A painter, if he is an artist, will always try to express himself before he knows anything of the craft of painting; he will force himself to learn to draw and paint, because he finds out the necessity. Perhaps my only valid excuse for daring to write this letter is that I have practised and instructed in two callings, both of which, for their fullest expression, require such infinite labour from the apprentice.

I am, Sir, yours faithfully,

HENRY TONKS.

Slade School of Fine Art, University College, Gower-street, W.C., Nov. 11th, 1929.

BROWN *v.* WHITE BREAD.

To the Editor of THE LANCET.

SIR,—Hartwell and Mottram found that their mice did not do well on an "Essex" diet, that is, a diet based on one which Dr. A. B. Hill found to be an average one for Essex agricultural labourers and their families. Miss Brad and I have been inbreeding a stock of mice for six years and we have found the mice do very well and breed very well on an Essex diet. Our diet consists of meat, 5·8; potatoes, 28·2; greens or peas or beans, 6·2; cheese, 0·8; tangerine, 2·8; sugar, 5·4; rolled oats, 0·8; milk, 8·3; white bread, 41·7. The food is got as cooked for our canteen lunch and is crumbled, shredded, and mixed together, and then minced. No water is added. We have come to regard this diet as excellent for producing fine-looking and well-breeding mice, better than what we call our "mild" diet, three kinds of grain and raw green stuff.

I am, Sir, yours faithfully,

Nov. 9th, 1929. LEONARD HILL.

INTERPRETATION OF FERTILITY TESTS.

To the Editor of THE LANCET.

SIR,—May I make two observations upon the excellent article in your Clinical Interpretation Series by Mr. Kenneth Walker last week. Incompatibility or relative fertility is often due to lack of sexual orgasm in the female with a certain male partner. Women respond with varying intensity to different males, and consequently there is a variation in quantity and quality of their sexual secretions during intercourse. This also explains why a woman will often infect one man with gonorrhœa and not others. In other words she suffers from a type of impotency.

The second point is of great medico-legal importance, particularly in cases of disputed paternity. Mr. Walker quotes the numerical calculations of spermatozoa by Comber and Sanders, and points out that conception very rarely took place when the figure was below 60 million. I would suggest some other factor was operating. Bearing in mind that usually only one spermatozoon penetrates an ovum, and that simply spraying the vulva with semen has caused pregnancy, I at least would hesitate to give a negative reply unless I found 60 million in a specimen.

I am, Sir, yours faithfully,

Harley-street, W., Nov. 9th, 1929. M. W. BROWDY.

THE HEALTH AND CONDITIONS OF WORK OF MEDICAL STUDENTS.

To the Editor of THE LANCET.

SIR,—Mr. Corner cannot, I think, have paid me the compliment of reading my paper, for he entirely misinterprets its purpose.

As Mr. Corner seems under a misapprehension with regard to the object of my address, which was to consider the health and mortality, not the careers, of medical students, I cannot but be doubtful as to whether the papers that he cites, his own and one by Sir Squire Sprigge, would have helped me materially. When I wrote asking for information on my subject, the Dean of St. Thomas's Hospital did not mention Mr. Corner's paper, which Mr. Corner tells me was published in the *St. Thomas's Hospital Gazette*. The Dean of St. George's Hospital similarly did not refer me to Sir Squire Sprigge's contribution regarding St. George's students. Clearly these authorities, who were in a better position than I was to be familiar with the articles referred to—*St. Thomas's Hospital Gazette* is little read outside St. Thomas's—did not regard them as being pertinent to my inquiry.

I am, Sir, yours faithfully,

E. GRAHAM LITTLE.

House of Commons, S.W., Nov. 12th, 1929.

THE DIAGNOSIS OF LARYNGEAL CANCER.

To the Editor of THE LANCET.

SIR,—Mr. Layton has evaded my question as to why my cases illustrated by lantern slides of microscopical sections "afforded a strong argument against biopsies." The cases illustrated the correction of erroneous clinical diagnoses by means of the microscopical examination of portions of tissue removed for the purpose. The assurance afforded by the unmistakable evidence of the microscope led to the prompt adoption of energetic treatment and the preservation of lives which would otherwise have inevitably been lost. Mr. Layton may have justification for his objection to microscopical biopsies, but surely not founded on these cases.

I am, Sir, yours faithfully,

London, Nov. 11th, 1929. JAMES DUNDAS-GRANT.

AVERTIN ANÆSTHESIA.

To the Editor of THE LANCET.

SIR,—I hope you will allow me to draw attention to some errors and omissions in your report of my paper on Avertin (THE LANCET, Nov. 9th, p. 979). Firstly, when speaking of the strengths of the solutions used I tried to make it clear that it is the manufacturers who now recommend a 2·5 per cent. in preference to a 3 per cent. solution on the grounds that absorption from a 2·5 per cent solution is more even and gradual but that I preferred the stronger solution for children as the smaller quantity of fluid to be injected is more readily retained by them. Secondly, the sentence beginning "fatal cases" misrepresents me, for only one death occurred in my series of 106 administrations, and I gave reasons for my belief that avertin was not responsible.

The omissions are more serious; no mention is made of the importance of testing the solution for impurities before injection, although this was emphasised. Again, no mention is made of the need for care in dosage, although a considerable part of my paper was devoted to the discussion of this essential; the result is that I am reported as saying that avertin is "a safe means of induction," whereas my statement was that it is safe if used in the doses recommended by Prof. Eichholtz.

I am, Sir, yours faithfully,

FRANCIS SHIPWAY.

York-terrace, N.W., Nov. 8th, 1929.

GENERAL MEDICAL COUNCIL ELECTION.

To the Editor of THE LANCET.

SIR,—Will you grant me the courtesy of your columns to convey to the Registered Medical Practitioners of Scotland my thanks for the renewed expression of their confidence. I shall do my best to deserve it.

I am, Sir, yours faithfully,

Edinburgh, Nov. 11th, 1929. NORMAN WALKER.

ELECTRICAL TREATMENTS IN ACUTE CONDITIONS.

To the Editor of THE LANCET.

SIR,—It is a matter for regret that most electrotherapeutists find difficulty in expressing their thoughts in recognised technical terms, and that they disregard directly appreciable or simple phenomena while in search of explanations for others. The lure of the fantastic seems to divert them from more widely accepted and plausible theories.

On reading Dr. Heald's article in your last issue (p. 974) I could not help feeling shocked at some of his statements and I am loth to let them pass unchallenged. It seems to me that, in a number of ways, the writer of the article on "Electrical Treatments in Acute Conditions" has confused causes and effects. He states that diathermy current is closely allied to the wireless wave. This is true inasmuch as a diathermy machine under requisite conditions may be made to emit electromagnetic waves of the wave-length employed in wireless. Rapidly oscillating electric fields can be made to cause ethereal disturbances and well-tuned circuits will convert these back to oscillating currents; but when diathermy apparatus is employed for electrotherapeutic purposes, the machine is used to create, in the patient's tissues, a rapidly oscillating field. It is conceivable that a small portion of electrical energy is converted into radiant energy of wireless wave-length, but it is doubtful whether those could be reconverted into electrical energy.

That heat is produced in this field is unquestionable, and that a number of phenomena attend this increase of temperature in the living tissues submitted to it cannot be doubted. All changes capable of being accelerated, whether physical, chemical, or biological, are accelerated by an increase of temperature. The viscosity of fluids is lowered, cellular activity is stimulated, and defensive processes, such as phagocytosis, antibody formation, bactericidal power, enzyme actions, &c., which generally have an optimum temperature above the normal body temperature, are stimulated. Why in the face of the extraordinary versatility of this physical agent, heat, should it be necessary to elaborate the fantastic theories which I take the liberty to quote:—

> "It has long been taught that diathermy acts only by heat, and has no specific action due to its wave-length. The very name of diathermy supports this theory. As I have said, however, diathermy currents are practically identical with ordinary wireless waves (one machine I have has a wave-length of 365 metres). This current, therefore, does not primarily belong to the heat, or infra-red, portion of the *ether scale*, but it does make itself manifest as heat after it has been *absorbed*, and to appear as such these waves must have first been absorbed and then changed to *heat waves*" (italics mine).

As it is not usual to classify currents among the electromagnetic waves or for them to be "absorbed," the last sentence is quite incoherent. Nor is it easy to understand the relevance of the sentence in brackets. Perhaps adequate understanding of such terms as "ether scale" and "heat waves" or the possibility of including oscillating currents among forms of radiant energy offer the clue to this. It matters little whether the body tissues act as a resistance to the current, or partly as leaky condensers, or whether actual ionic displacement takes place as opposed to pure electronic motion. I cannot help feeling that it is far more satisfactory to interpret the beneficial action of diathermy as the result of accelerated physiological activity following an increase of temperature.

In another paragraph Dr. Heald talks of "heat waves" given out by hot-water bottles and fomentations, and argues that diathermy currents differ from these in that "their initial structure is such that they can pass through all kinds of tissues whether conducting or non-conducting, and where they meet relatively poorly conducting tissues, such as bone, their change into heat waves is more rapid than in such vascular structures as muscles." Here one has great difficulty in making out whether he is talking of the wireless waves, supposed to be produced by the oscillating currents, or the current itself. If one was meant to understand the former, I venture to say that the different resistances of tissues would have very little influence on the amount of heat produced, unless some obscure phenomenon of cellular resonance were to interfere. To advance theories on this subject, without further evidence of this occurring, would be speculating and inviting further criticism. On the other hand, if Dr. Heald means that diathermy currents produce more heat in bones than in other tissues, he is right, always providing he does not give the current an alternative path of less resistance.

I am, Sir, yours faithfully,

Wimpole-street, W., Nov. 11th, 1929. PH. BAUWENS.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

ACCIDENTS IN MINES.

IN the House of Commons on Nov. 6th Mr. GORDON MACDONALD moved:

> "That this House deplores the heavy loss of life and the large number of non-fatal accidents in coal mines, and is of opinion that every possible step should be taken without delay to secure the fullest protection possible to those engaged in this dangerous industry."

He said that in the two years preceding the extension of working hours the rate per 1000 of fatal accidents wa 1·11 in 1924 and 1·15 in 1925. In 1927—the year after ths Eight Hours Act was passed—the figure was 1·25 and in 1928 it was 1·18. That showed that the Government had made things worse as regarded the number of accidents. The only hope of dealing effectively with the matter was to reduce the working day to the point at which it stood before the passing of the Eight Hours Act. In 1924 the non-fatal accidents numbered 11,937; in 1925 they were 10,622. The rate per 1000 worked out for 1924 at 158·8 and for 1925 159·3. In the two years immediately following the total was 9338 and 8347 respectively and the rates per thousand were 167·2 and 170. Between 1925 and 1928 there had been an increase of 11 per 1000 in non-serious accidents, and the same applied to serious accidents. He did not say that the increase per 1000 in the number of accidents was a direct result of the eight hours working day, but he suggested that the increased working hours was a matter which should be carefully examined in this connexion. Apart from the injuries to the body of miners caused by accidents they had to deal with the very serious menace known as nystagmus. At present there were 9775 men in this country suffering from that disease, which endangered the physical and nervous strength of every sufferer. It was about time that something was done in regard to these men. When they made a slight recovery and were able to do some light work they found themselves faced with total unemployment. The bulk of the regulations governing the life of miners to-day were made in 1911. Since that date mining life, especially underground, had been revolutionised as a result of the introduction of mechanism. The Government might consider seriously taking legislative action to deal with the situation. They might, if necessary, appoint a committee of inquiry for the purpose of consolidating all the statutory orders since 1911 and then produce an up-to-date Mines Regulation Act.

Mr. ROWSON seconded the motion.

Dr. ETHEL BENTHAM said there was no doubt about the enormous incidence of accidents, both fatal and otherwise, on the mining community. She was not an expert in the

management of mines, but she had found during her fairly long experience that in many trades piece rates were responsible, not only for accidents, but for ill-health among the workers as well as for a great deal of indifferent work. The workers in every trade with which she was conversant—and she knew a good deal about the conditions in many of them—always said that accidents occurred late in the working day. They ought to consider very carefully the effects of over-long hours in such a laborious, difficult and dangerous trade as mining. She thought that most members of the medical profession—she could not speak for the whole—agreed that it was the posture and the lighting conjointly which were the cause of nystagmus, and it seemed to her that it would be possible by concerted action to get really disinterested evidence on that matter and to take measures to put an end to a disease which was quite preventable if they were ready to consider the lives of men, women and children, and the national advantage of good health instead of the narrow financial aspect of the matter which precluded sufficient money being spent on the prevention of the disease and on experiments with a view to such prevention.

The Government's Reply.

Mr. BEN TURNER, Secretary for the Mines Department, replying for the Government, said that the recorded accidents in 1928 were less than in the years before, but he had no such comfort to offer for this year. Up to 1929 the numbers were the lowest since 1899, but during the first nine months of this year they had gone back to the old rate of over 1000 persons killed each year. It was also certain that there were many unrecorded accidents. It was true that the death-rate in our pits was less than in America and Germany. That, however, was little comfort to those who lost their breadwinner, and all parties in the State were anxious, if possible, to assist in the reduction of these accidents. He wondered sometimes if the unsettled economic and other conditions in the coalfields had added to the heavy loss of life and limb. He was quite certain that there had been no slackness in the Mines Department with regard to protective measures. The rate, however, was so terrible that every effort must be made to bring about a great reduction. The present strength of the mining inspectorate was 106, including eight special inspectors who devoted the whole of their time to the inspection of pit ponies. The number of mines in 1922 was 2911 and the employees 1,162,754. Last year the number of mines was 2539 and the number of employees 951,000. In 1922 the number of inspections was 18,941; last year it was 21,748. The average number of inspections of every mine per year was 7·2 underground and 1·5 on the surface. He was certain that the new electrical development in mines called for more skilled electrical inspectors. Since 1912, when 500,000 horse power was being applied to pits, the amount had grown to 1,750,000 horse power. There was a great risk in the use of this new agency, and it required attention. To relieve the situation he hoped to appoint four additional electrical inspectors of mines. The difficulties in the way of revising legislation for the mines were twofold. In the first place, the various sections of the industry were all too preoccupied with labour and economic conditions to give it the detailed attention and constructive criticism which the Department needed. In the second place, the Government were so fully occupied with prospective legislation in this and other matters that it was impossible to overcome delay. In connexion with the code of regulations for first-aid and ambulance work he thought that delay had been caused by the procedure which was not as speedy as it should be. The practice had been to send the draft regulations to the Mining Association; then they came back to the Department, which sent them to the Miners' Federation. He saw no reason why the two sides of the industry should not meet and decide upon the best regulations instead of passing a draft backwards and forwards as had been done hitherto. Many accidents could be avoided with more care and expenditure—care on the part of the management, the officials and the men, and expenditure on the part of the owners. Accidents arising from falls of roof and from haulage were the heaviest in each week's return, and this had caused the Mines Department, through the Mines Research Board, to appoint a highly qualified specialist to organise and superintend further experimental work on these subjects and generally to assist the Safety in Mines Research Board in regard to the important mechanical problems in mines. The Department was doing much in the direction of propaganda. He hoped also that science would succeed in producing a lamp giving a safe light with a bigger candle power, which would preserve the miner's eyesight and help to make his production better. In conclusion Mr. Turner assured the House that all the suggestions put forward in the debate would receive careful consideration with a view to the promotion of safety and comfort for men in the coal pits.

The motion was agreed to.

HOUSING BILL.

On Monday, Nov. 11th, Sir R. GOWER presented a Bill to make better provision for the improvement of unhealthy areas; to provide adequate compensation for business disturbance; and to make certain consequential amendments to the Housing Act, 1925.

ILLEGITIMATE CHILDREN IN SCOTLAND.

On Nov. 12th the Duchess of ATHOLL obtained leave to bring in a Bill to amend the law regarding the duration and recovery of aliment for, and the custody of, illegitimate children in Scotland. She explained that the Bill would make the father liable for aliment until the child was 16. The mother was also given power to make application for the expenses of her confinement as well as for aliment within three months of her expected confinement, although if the case were defended by the father the decree could not become operative until after the birth of the child.

Among the backers of the Bill was Major ELLIOT.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 6TH.

Rheumatic Diseases and Pulmonary Tuberculosis in the Navy.

Dr. VERNON DAVIES asked the First Lord of the Admiralty if he was aware that in 1927, out of a total of 20 men invalided for rheumatic fever, 17 had served for less than two years and that out of a total of 79 men invalided for organic heart disease 40 had served for less than two years; and if he could offer any explanation for this high incidence of rheumatic diseases.—Mr. ALEXANDER replied: The answer to the first part of the question is in the affirmative. It is not considered that the incidence of rheumatic diseases is unduly high when consideration is given to the early age at which recruits are received into the Navy.

Dr. VERNON DAVIES also asked how many of the 159 men invalided from the Service in 1927 for pulmonary tuberculosis were granted disability pensions; in how many cases was the disease held to be attributable to the conditions of service; and how these numbers compared with those of the previous three years, expressed as a percentage of the number pensioned to the total number of cases.—Mr. ALEXANDER replied: The number of men invalided in 1927 for tuberculosis was 180, and pensions on the attributable scale were granted in 18 cases, or 10 per cent. of the total. This compares with 3 per cent. in 1926, 1 per cent. in 1925, and 3 per cent. in 1924. In a considerable number of cases pensions on the non-attributable scale were granted where the men had sufficient service to qualify.

Dr. DAVIES: Will the right hon. gentleman observe that the percentage of pensions granted has increased rapidly this year, possibly to the too great restrictions on previous years, and would he be prepared to look over some of the back cases to see if the present conditions on which pensions are granted are applicable to cases which have been previously refused.

Mr. ALEXANDER: I shall be glad to consider any representations of a specific character made to me. It is obviously difficult to go back on decisions which have been made under regulations which existed at that time, but I will consider it.

Mr. HORE-BELISHA: While the figures show an improvement under the revised rules, is not the necessity for an appeal tribunal still apparent?

Mr. ALEXANDER: As far as I have been able to look into the matter there is a considerable improvement in the method in which these cases are dealt with, but I have had no strong case put to me yet for an appeal tribunal, and, in fact, I am not at all sure that in the regular Service cases an appeal tribunal would always be to the advantage of the men. I hope that the hon. Member will consider that.

Vaccination of Naval Personnel.

Mr. MOSES asked the First Lord of the Admiralty how long it had been the practice to carry out quinquennial revaccination, as necessary of all personnel in the Navy; whether such revaccinations were compulsory; and whether he proposed to make any changes in the Navy regulations relating to the vaccination of naval recruits and dockyard apprentices under the age of 19 years who had not previously been vaccinated, in view of recent cases among the civil population of post-vaccinal encephalitis.—Mr. ALEXANDER replied: It has been the practice to carry out quinquennial revaccination of personnel of the Royal Navy, when going abroad, for many years. An order was issued on Sept. 7th, 1928, that revaccination of active service personnel should be carried out every five years (Admiralty Fleet Order, 2216/28). No punishment or penalty is incurred for declining revaccination on conscientious or other grounds, but precautions are taken to prevent men not

revaccinated from becoming a danger to the Service by landing in ports where there is danger of contracting small-pox (King's Regulations and Admiralty Instructions 1417/12). It is not proposed at present to make any changes in the Navy regulations relating to the vaccination of Naval recruits, in view of the fact that these young men are likely to be exposed to the danger of infection by the severe Oriental type of small-pox as soon as they go to sea. The regulations relating to the vaccination of dockyard apprentices are under consideration.

Civil Service and Scientific Research.

Lieut.-Colonel FREMANTLE asked the Prime Minister if it was the intention of H.M. Government, in appointing the Royal Commission on the Civil Services, to review the status and functions of the large body of scientific and technical experts engaged in the Civil Services, with a view to the furtherance of scientific knowledge, methods, and research of those services; and if, seeing that there was no representative of science nor anyone engaged in the application of science to the needs of the community, he would consider the addition to the Royal Commission of a due proportion of such representatives.—Mr. SNOWDEN, Chancellor of the Exchequer, replied: The Royal Commission has been appointed to inquire into and report on the structure and organisation of the Civil Service, conditions of employment of Civil Servants, and conditions of retirement from the Civil Service. Its terms of reference have been widely drawn and it will be for the Commission itself to determine the extent to which the various subjects within the scope of the reference can profitably be reviewed. I am satisfied that the Commission as now constituted is well adapted to the purposes of the inquiry and I am not prepared to enlarge its numbers.

Colonial Veterinary Scholarships.

Mr. ORMSBY-GORE asked the Under-Secretary for the Colonies whether the proposed school of tropical veterinary medicine, recommended by Lord Lovat's Committee, would now be established; and what steps were being taken to improve the recruitment and training of veterinary officers for service under Colonial Governments.—Mr. LUNN, Parliamentary Under-Secretary for the Colonies, replied: A decision on the recommendation of Lord Lovat's Committee on the Colonial Veterinary Services for the establishment of a school of tropical veterinary science was deferred until the Report of the Departmental Committee on the reconstruction of the Royal Veterinary College at Camden Town was available. This report has now been issued, and the question will be further considered in the light of the recommendations contained in it. It is hoped that it will be possible to bring the proposed Colonial Veterinary Scholarship Scheme into operation next year. All the Colonial Governments which were asked to contribute towards the expenditure involved have agreed to do so, and the Colonial Development Advisory Committee are now considering an application for a grant from the Colonial Development Fund to meet the one-third of the annual cost of the scholarships which was the portion that Lord Lovat's Committee recommended should be provided from United Kingdom funds.

Motorists and Third-party Insurance.

Sir GERVAIS RENTOUL asked the Minister of Transport whether he was prepared to introduce legislation for the compulsory third-party insurance of all motor vehicles.—Mr. HERBERT MORRISON replied: The desirability of requiring that the driver of a motor vehicle should obtain cover against any legal liability that may attach to him in respect of the death of, or bodily injury to, another person will be most carefully borne in mind in connexion with any Road Traffic Bill which I may be in a position to present to Parliament.

Stationary Cars and Road Accidents.

Sir ALFRED KNOX asked the Minister of Transport if he would, in order to prevent a frequent cause of accidents, insert in the Transport Bill the provision that cars drawing up at the side of the road after lighting-up time must be pointed in the same direction as the traffic on that side.—Mr. H. MORRISON replied: I have under consideration the inclusion in any legislation that may be introduced to deal with road traffic of a provision making it an offence to leave a motor vehicle in a position dangerous to other traffic using the road. In the case of a well-lighted street a general provision of the nature suggested by the hon. Member might cause unnecessary inconvenience, and even danger, owing to the necessity of reversing vehicles in order that they might point in the proper direction.

Proposed Extension of Milk and Dairies Order.

Mr. LAWTHER asked the Minister of Health if he would take the necessary steps to extend the Milk and Dairies Order, 1926, to the housing of calves and young cattle, as it was held that this might help towards preventing the spread of tuberculosis.—Miss LAWRENCE, Parliamentary Secretary to the Ministry of Health, replied: Although my right hon. friend agrees as to the importance of the proper housing of calves and young cattle, it seems to him that the safeguarding of the health of such animals is too remote from the objects of the Milk and Dairies Order to justify him in extending the provisions of that Order in the manner suggested.

Insurance Committees and Health Lectures.

Dr. MORGAN asked the Minister of Health how many insurance committees had taken advantage of the provisions of the National Health Insurance Acts and instituted lectures on health and disease prevention for the insured persons in their district; how many such lectures had been given this year and at what cost; and whether any steps were proposed to remind insurance committees of their obligations in this respect.—Mr. GREENWOOD replied: I am not in possession of any precise figures on the points raised in the first two parts of the question; but I am aware that certain committees have undertaken work of this character. It is not obligatory upon committees to do so, and I think they are already fully acquainted with their statutory powers.

Care and Management of Infants.

Dr. HASTINGS asked the Minister of Health whether he would consider the presentation of a booklet through the local authorities on the care and management of infants to the parents of every child at the time that its birth was registered.—Mr. GREENWOOD replied: It is the common practice for local authorities to arrange for the distribution of booklets of this kind to parents by health visitors and at infant welfare centres, and I do not therefore consider it necessary to take the action suggested by my hon. friend.

Leaflets on Treatment of Disease.

Dr. HASTINGS asked the Minister of Health whether his attention had been called to the amount of disease which was preventable or readily curable if treated in its earliest stages; and whether he would consider the advisability of the provision of leaflets dealing with human disease, similar in nature to the leaflets provided by the Ministry of Agriculture regarding the diseases of animals and plants.—Mr. GREENWOOD replied: I am aware of the facts referred to in the first part of the question. My Department have, from time to time, issued memoranda dealing with the prevention and treatment of various diseases, and further memoranda of the same character will be issued as occasion requires. These memoranda are on sale to the public, but they are primarily designed for the information of local authorities and their officers, and in some cases may conveniently form the basis for the popular leaflets or public announcements issued by such authorities.

Vacancies for Colonial Veterinary Officers.

Mr. ORMSBY-GORE asked the Under-Secretary of State for the Colonies if he would state how many unfilled vacancies now existed for veterinary officers and veterinary research officers in the Colonies, Protectorates, and Mandated Territories.—Mr. LUNN replied: Apart from the consequential vacancies which will be caused by promotions now under consideration there exists at the present time one vacancy for a veterinary officer.

Pensions of Indian Medical Officers.

Mr. WEDGWOOD BENN, Secretary of State for India, in reply to Major GRAHAM POLE, stated that the number of officers of the Indian Medical Service who drew pensions through the India Office chargeable to Indian revenues during the year ended March 31st, 1929, was 551, and the amount paid during the year in respect of these pensions was £310,969.

THURSDAY, NOV. 7TH.

Cancer among Industrial Workers.

Mr. PHILIP OLIVER asked the Home Secretary whether he had yet been able to take any and, if so, what steps to facilitate the investigation at present being carried out by the London Cancer Hospital into the incidence of the disease of cancer of the bladder among workers in aniline factories.—Mr. CLYNES replied: Yes, Sir. I am arranging for the coöperation of the Medical Inspectorate of the Factory Department in the investigation of the industrial history of cases of this disease; and I am also consulting the Registrar-General on the question of facilitating the supply of the statistical information required.

Escape of a Mental Patient.

Mr. LANG asked the Home Secretary if his attention had been drawn to the escape from Devizes Mental Hospital of a patient named Littleton Watson; if he was aware that this patient was transferred to Devizes from Broadmoor criminal lunatic asylum a year ago; and if he would

state the conditions under which such transfers were made.—Mr. CLYNES replied: I have seen a newspaper report. The escape of a patient who is not a criminal lunatic would not be reported officially to me. The patient in question, while under sentences for stealing and false pretences, was certified insane and removed to Broadmoor, as a criminal lunatic. When his sentences expired in October, 1928, he ceased to be a criminal lunatic; but as he was still insane, he was recertified under the ordinary lunacy law and received into the Devizes Mental Hospital. This is the course prescribed by statute.

Experiments on Living Animals.

Mr. FREEMAN asked the Home Secretary if he would give instructions that a record be kept of the kind of animals used for each experiment in vivisection, the total period during which each animal was experimented upon, and the actual time during which it suffered any kind of pain; and that this information be published in future reports.—Mr. CLYNES replied: No, Sir. I do not think that the information suggested, even if it were obtainable, would serve any useful purpose. So far as the question of pain is concerned, I would remind my hon. friend that stringent conditions are imposed in all cases in which the experiment is performed without anæsthesia or the animal is allowed to come out of the anæsthesia.

Health Conditions in Artificial Silk Works.

Mr. KELLY asked the Home Secretary what action had been taken to improve the health conditions in the spinning rooms of artificial silk factories, particularly in the matter of eye injury and lung trouble; and if any prosecution had taken place against firms in this industry during the last six months.—Mr. CLYNES replied: The matter has continued to receive the close attention of the inspectorate, and the further conference which I mentioned in my reply to my hon. friend on July 25th last was held last month. It was agreed that the remedy for the special trouble arising in the spinning rooms is to secure efficient ventilation, and the inspectors and occupiers are concentrating on this. In many cases improvements have been effected with beneficial results. The conditions in all these works will continue to receive close supervision. One prosecution has taken place during the last six months, the offences being failure to ventilate the churns and failure to notify cases of poisoning by carbon bisulphide. Substantial penalties were imposed.

Supply of Milk at Maternity Centres.

Mr. FISON asked the Minister of Health whether any applications had been made by local authorities for approval of additional expenditure for providing increased allowances for milk at maternity centres; whether such applications had been granted; and what was the amount of such additional expenditure approved.—Mr. GREENWOOD replied: Sixteen such applications have been received since June last up to the present date, of which ten have been wholly granted and one in part. The remaining five applications are under consideration. The additional expenditure already approved amounts to £1513, while the total amount under consideration is £1973.

Nursery Schools.

Dr. HASTINGS asked the President of the Board of Education how many of the 29 existing and 15 contemplated nursery schools were open-air schools; and whether he proposed to sanction any further nursery schools not of the open-air type.—Sir CHARLES TREVELYAN replied: Of the 29 existing nursery schools, 23 are open-air schools and nearly all the others have good open-air facilities. The importance of securing the provision of a largely increased number of nursery schools is so great that some latitude must be allowed, as, for example, where it is proposed to adapt an existing building for the purpose, but the majority of the new schools will be of the open-air type.

Public Cleansing in London.

Major KINDERSLEY asked the Minister of Health whether the Departmental Committee appointed to consider the Report of an investigation into the public cleansing service in the administrative county of London had yet made its Report; and whether that Report would be published.—Mr. GREENWOOD replied: The work of the Departmental Committee has been delayed by the unfortunate death of its chairman, Sir John Gatti, to whose public services, though I differed from him on many matters, I should like to pay my tribute. A new chairman is to be appointed, and I hope that the Committee will find it possible to make an early Report, which will pave the way to dealing with this pressing problem on effective and comprehensive lines. I see at present no reason why their Report should not be published. I can assure the House that the Government are impressed with the necessity for action, and I propose to confer with the Committee at an early date. I do not think that it would help matters to add to the Committee representatives of areas in which dumps are situated. I understand that the Committee have already considered a large part of their problem and have visited some of the dumps.

Non-Pulmonary Tuberculosis.

Dr. HASTINGS asked the Minister of Health the number of deaths from tuberculosis of other organs than the lung that occurred in 1928; and if any estimate had been made of the number of these deaths that resulted from infection by tuberculous milk.—Mr. GREENWOOD replied: Of the registered deaths in England and Wales in 1928 classified to tuberculosis, 6824 were assigned to forms of the disease other than pulmonary tuberculosis. I am advised that there is no information available on which to base any reliable estimate of the number of these deaths which were due to infection by tuberculous milk.

Derating and Voluntary Hospitals.

Mr. WARDLAW-MILNE asked the Minister of Health whether it was the intention of the Government to introduce legislation extending the benefits of derating to the voluntary hospitals.—Mr. GREENWOOD replied: It is not at present the intention to introduce such legislation. It would not be practicable to propose the total or partial exemption of hospitals from rating without at the same time considering the claims for similar exemption of other charitable and public institutions.

Lunacy Law Reform.

Viscount ELMLEY asked the Minister of Health whether he intended to revise the Lunacy Laws; and, if so, when the proposals would be brought forward.—Mr. GREENWOOD replied: I hope that it may be practicable in the near future to introduce a Bill to effect certain improvements in lunacy law and administration.

Government and Slum Clearance.

Mr. ALBERY asked the Minister of Health whether he anticipated that the Government's scheme for slum clearance was likely to be in operation within the next 12 months.—Mr. GREENWOOD replied: Yes, Sir.

Lieut.-Commander KENWORTHY asked the Minister of Health the total number of slum clearance schemes carried out during the years 1925 and 1928 inclusive; and what was the total number of persons rehoused under these schemes.—Mr. GREENWOOD replied: In the period from 1925 to 1928 work was in progress on 118 slum schemes, some of which had been started prior to 1925. The total number of people to be rehoused in connexion with these schemes was 71,413. In the case of 61 schemes the work of rehousing was completed during the period and provided accommodation for 20,745 persons.

Dr. MORGAN asked the Minister of Health if he was aware that many persons in the south-east of London were being summoned or being prosecuted for overcrowding; and whether, in view of the prevailing conditions, over which these poor people had no control, he would seriously consider the advisability of issuing a circular letter to metropolitan local authorities requesting them to delay any such proceedings pending the introduction of his promised Slum Clearance Bill.—Mr. GREENWOOD replied: My hon. friend has brought some particulars to my notice. I have no power to give directions to the local authorities to refrain from action in cases which they consider they should bring before the courts.

Medical Services in Naval and Military Forces.

Dr. VERNON DAVIES asked the Secretary to the Treasury what progress had been made by the joint medical services committee of the Navy, Army, and Air Force in establishing a common system of costing with regard to hospitals.—Mr. PETHICK-LAWRENCE replied: The experiments which have been tried for the past two and a half years are still in progress; but it has not yet been found possible to devise a common form for use in all the Services which will give satisfactory results.

Pulmonary Tuberculosis in the Services.

Dr. VERNON DAVIES asked the Secretary to the Treasury if the joint medical committee of the three Service departments and the Ministry of Pensions appointed to inquire into the relationship between conditions of Service life and pulmonary tuberculosis had come to any decision; if any report had been submitted; and, if so, if it would be available for the information of the House.—Mr. AMMON replied: The committee have reported, and as a result of certain recommendations made by them various steps are being taken by the Departments concerned. The answer to the last part of the question is in the negative.

Hysteria in Dogs.

Colonel CLIFTON BROWN asked the Minister of Agriculture if he was aware that the comparatively new disease of

hysteria was seriously affecting sheep-dogs and other dogs in this country; and what steps his department was taking to investigate the cause of this ailment and to find a cure.—Dr. ADDISON, Parliamentary Secretary to the Ministry of Agriculture, replied: I am aware of the occurrence of hysteria among dogs in this country, and although no cases in sheep-dogs have been brought to my notice, they are probably susceptible to the condition. Research into the disease is in progress at the Royal Veterinary College.

The Royal Veterinary College.

Captain CROOKSHANK asked the Minister of Agriculture if he could make any statement regarding the future of the Royal Veterinary College.—Dr. ADDISON replied: My right hon. friend has received the Report of the Committee which was appointed by his precedessor to consider the whole problem of the reconstruction of the Royal Veterinary College. The Report raises important and difficult questions which are now receiving his careful consideration, and a further statement on the subject will be made in due course.

Sounding Motor Horns at Night.

Colonel HOWARD-BURY asked the Minister of Transport whether he was aware that in Paris during certain hours of the night no motor horns were allowed to be sounded; and whether he would put in force a similar order in the London metropolitan area.—Mr. H. MORRISON replied: Although traffic conditions in London differ materially from those prevailing in Paris, I am having inquiries made with a view to ascertaining whether the principle adopted in Paris of prohibiting the sounding of motor horns during certain hours of the night in certain parts of the city would be suitable for experimental trials in some portion of the metropolitan area.

Voluntary Hospitals and Recovery of Expenses.

Major EDMONDSON asked the Minister of Transport whether his attention had been called to the position of voluntary hospitals with regard to their right to recover expenses in cases where the personal damage suffered by patients had been assured against; and whether he was prepared to take steps to introduce legislation, if necessary, to remedy the present position.—Mr. H. MORRISON replied: I am aware that the voluntary hospitals incur considerable expenditure in the treatment of motor accident cases, but I do not think that it would be practicable or desirable to provide that they should have a special legal claim to a proportion of insurance moneys in those cases where the injured person is compensated out of such moneys.

MONDAY, NOV. 11TH.

The Tuberculosis Order, 1925.

Mr. LAWTHER asked the Minister of Agriculture if he would give the figures of the number of animals slaughtered under the Tuberculosis Order, 1925, in the counties of Northumberland, Durham, Cumberland, and the North Riding of Yorkshire for the year ending December, 1928; and if he was satisfied that proper precautions existed to prevent those carcasses being used for human consumption.—Mr. BUXTON replied: The number of animals slaughtered in the counties named during 1928 under the Tuberculosis Order of 1925 was: Northumberland, 92; Durham, 210; Cumberland, 152; and North Riding, 320. The carcasses of animals slaughtered, for which compensation is paid to the owner, become the property of the local authority, and the Order of 1925 (No. 2) provides that no parts of such carcasses shall be removed for consumption without the written permission of the medical officer of health or other competent officer of the sanitary authority. I am therefore satisfied that the proper precautions exist.

Grants for Maternity and Child Welfare.

Lieut.-Colonel HENEAGE asked the Minister of Health what grant he proposed to make towards maternity and child welfare services.—Miss LAWRENCE, Parliamentary Secretary to the Ministry of Health, replied: It is estimated that the total grant payable during the present financial year in respect of these services will be about £1,170,000, as compared with £1,071,500, the total grant paid last year.

Asbestos Workers and Workmen's Compensation.

Mr. STAMFORD asked the Home Secretary whether he had received a report of the coroner's inquest on Abraham Jowett, a charge hand at Messrs. J. W. Roberts' asbestos works at Armley, Leeds, whose death was certified as being due to acute lobar pneumonia, contributed to by fibrosis due to asbestosis; and whether, in view of the risks to which workers in asbestos were exposed, he intended to schedule the disease under the Workmen's Compensation Acts.—Mr. SHORT, Under-Secretary to the Home Office, replied: Yes, Sir. My right hon. friend has received a report on this case from the inspector who attended the inquest. The risks to which workers in asbestos are exposed have been the subject of a comprehensive inquiry by the Factory Department, and my right hon. friend hopes to be in a position very shortly to consider what further precautions are necessary for the protection of the workers. The question of compensation will be considered at the same time. At the present moment he cannot make any statement on the subject.

Noxious Fumes from Cement Works.

Mr. MILLS asked the Minister of Health if he had received complaints of noxious and vegetable-destroying fumes from cement works on the banks of the River Thames; and, if so, what action was contemplated.—Miss LAWRENCE replied: Complaints have been received regarding the emission of dust. An inspector of my department has made investigations. In one case, steps have been taken to reduce the emission and the matter is continuing to receive attention. In the other case, the inspector reported that he was satisfied as to the result of the steps which had been taken.

Mr. MILLS asked the Home Secretary the measures taken to prevent nuisances by wasteful fumes from cement factories; and the comparative waste as between German works and British works.—Miss LAWRENCE replied: The emission of fumes is usually kept well in hand; the emission of dust gives more trouble. A good deal has been done and experiments are being conducted for dealing more effectively with the problem. Inspectors of my Department are in close touch with what is being done. I cannot at present say how works in this country compare with those in Germany.

Wards at Broadmoor Asylum.

Mr. OLIVER BALDWIN asked the Home Secretary whether he was aware that at Broadmoor Criminal Lunatic Asylum there was a special ward where prisoners of the richer classes were segregated; and, if so, whether he would discontinue this method of class distinction.—Mr. CLYNES replied: There is no such special ward at the asylum.

Blind Persons in England and Wales.

Mr. CLYNES, Home Secretary, informed Mr. KELLY that on March 31st last the number of blind men and women registered under the Blind Persons Act, 1920, in England and Wales was 48,408.

TUESDAY, NOV. 12TH.

Properties in Insanitary Areas.

Sir ROBERT GOWER asked the Minister of Health the number of persons who owned properties in the respective areas represented by local authorities to be insanitary, schemes relating to which had been submitted to him and awaited his approval, and the number of persons owning businesses in such areas respectively.—Mr. GREENWOOD replied: The following statement gives the information desired:—

Local authority.	Scheme.	Persons owning properties in the area and lessees of such properties.	Persons carrying on businesses in the area.
Metropolitan Borough Councils—			
Bethnal Green ..	Digby Street.	13	4
Bermondsey	Rotherhithe Street (West)	21	21
Wandsworth ..	Wandsworth Plain.	35	28
County Borough Councils—			
Bristol	Dings Area.	42	13
Exeter	No. 4 area reconstruction scheme.	5	6
Ipswich	Currier Lane, &c.	55	12
West Bromwich ..	Cooper Hill Street, &c.	32	None so far as is known at present.
Borough Council—			
Wisbech	Carpenter's Arms Yard, &c.	17	5
Urban District Council—			
Knaresborough ..	Beech Hill.	6	3

Slum Clearance Schemes.

Sir ROBERT GOWER asked the Minister of Health what schemes relating to alleged insanitary areas had been submitted for his approval by local authorities during the past five months; and what his decision in each case, respectively

had been.—Mr. GREENWOOD replied: During the last five months schemes of this kind have been submitted by the corporations of Bethnal Green, Bristol, Wandsworth, and Wisbech. These schemes are still under consideration.

Medical Examination of Young Mining Workers.

Dr. VERNON DAVIES asked the Secretary for Mines if he proposed to take steps to ensure that all young persons under 18 years of age entering the mining industry should be medically examined for fitness before starting work.—Mr. BEN TURNER replied: I understand that medical examination of young persons is one of the matters now under consideration in connexion with a new Factories Bill. When this Bill has become law I will consider whether any change is necessary in mining legislation to bring it into conformity with factory legislation in this respect.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—As the result of the Final Examination held from Oct. 7th to 30th the following candidates were approved in the undermentioned subjects, but are not eligible for diplomas:—

Medicine.—A. H. Baker, Manchester; J. C. Banerjea, Guy's; A. Barber, St. Bart.'s; K. C. Bhattacharyya, St. Thomas's; R. O. Brooks, Manchester; D. S. Chowdhary, London; R. E. S. Dalliwall, Cambridge and St. Bart.'s; E. Dikshitulu, Madras and Charing Cross; Sheila J. Ferguson, King's Coll.; E. C. I. Foot, Sheffield and St. Bart.'s; J. F. Galpine, Leeds; R. K. Goyal, London; Charlotte Gray, Univ. Coll.; R. S. Harrison, Guy's; Aureval Heaton, Royal Free; Katherine M. Heberlet, Univ. Coll.; Gladys M. Herbert, St. Mary's; G. L. Johnson, Columbia; E. O. Lakey, Univ. Coll.; P. A. E. Lansel, Middlesex; A. Liberis, St. Bart.'s; K. M. Macleod, Edinburgh; J. S. MacVine, St. Bart.'s; R. S. Mann, Univ. Coll.; E. K. Menon, Birmingham; B. B. Nanavatty, Royal Free; F. J. Napier, Guy's; G. L. Ormerod, Cambridge and St. Thomas's; C. H. Pauli, Bristol; S. L. Rikhye, London; S. L. Robert, Birmingham; B. P. Robinson, Manchester; L. K. Robson, Guy's; J. Ross and H. K. Said, Charing Cross; J. Sakula, Middlesex; R. L. Sethi, London; Edna F. Sheridan, King's Coll.; H. Silverstein, St. Bart.'s; G. H. G. Southwell-Sander, St. Thomas's; R. G. Sowter, Guy's; Ada M. W. Stewart, Univ. Coll.; T. S. Stone and K. T. Taskar, London; P. H. Taylor, King's Coll.; Rose E. Williams, Royal Free; R. A. Wilmshurst, St. Thomas's; G. R. H. Wrangham, St. Mary's; and F. C. A. Wright, King's Coll.

Midwifery.—G. L. Alcock, St. Thomas's; Katharine M. Allen, King's Coll.; S. Amir-ud-din, Lahore; W. T. Andrews, St. Thomas's; Lily Arratoon, Royal Free; P. B. Ascroft, Middlesex; W. I. Bain, St. Thomas's; A. H. Baker, Manchester; W. L. H. L. Bell, St. George's; J. N. Bhada, Univ. Coll.; F. K. Boston, St. Bart.'s; A. D. Bourne, St. Mary's; A. E. Bowling, Leeds; Mabel Brewster, Royal Free; W. J. Burgess, St. Bart.'s; M. L. Bynoe, King's Coll.; E. C. Campbell and H. Canwarden, St. Mary's; L. Charney and D. N. Chatterji, London; W. F. Church, St. Bart.'s; D. O. Clark, St. Thomas's; Charlotte A. G. Conway, Royal Free; J. S. Cotman, St. Mary's; W. C. Cresdee, St. George's; H. D. Cronyn, St. Mary's; H. J. Croot, Guy's; R. M. S. Cross and R. E. S. Dalliwall, St. Bart.'s; Elizabeth T. Davies, Westminster; H. L. G. Davies, St. Bart.'s; V. Dellal, Manchester; D. Divine, Guy's; S. Durham, London; J. M. Durr, Guy's; J. J. Eapen, Madras; Sheila J. Ferguson, King's Coll.; Doreen P. Firmin, Westminster; J. P. Flanagan, Liverpool; A. A. G. Flemming, Cambridge and Bristol; P. Frankenberg, St. Bart's; K. Ghosh, Royal Free; E. J. Goldsmith, St. Thomas's; Rebecca Goldstein, Univ. Coll.; R. W. Graham-Campbell, St. Bart.'s; E. R. Greathead, London; Sheila M. Harper, Liverpool; J. O. Harrison, St. Bart.'s; R. S. Harrison, Guy's; J. E. M. Harrisson and R. M. Harvey, London; Katherine M. Heberlet, Univ. Coll.; J. R. Heming, St. Thomas's; J. E. R. Heppolette, St. Mary's; L. Hershfield, Middlesex; J. R. Hindmarsh, Durham; Constance M. Hoare, King's Coll.; R. S. Hodge and Laura M. Hollingworth, Univ. Coll.; S. W. Holmes, St. Mary's; D. W. Hoodless, Charing Cross; H. R. Hovsha, King's Coll.; Eugenie C. Illingworth, Leeds; B. Isaac, St. Mary's; H. B. Jackson, Middlesex; W. J. Johnson, Guys'; M. M. St. G. Johnstone and G. L. Jones, St. Thomas's; I. G. Jones, Univ. Coll.; Alison F. Z. Judd, Royal Free; F. B. Kantzer, Chicago; J. D. Kershaw, Univ. Coll.; J. S. Knox, St. Bart.'s; F. P. L. Lander, Middlesex; G. F. Langley, Bristol; Annie Lawson, Royal Free; S. R. Ledger, King's Coll.; D. H. Le Good, St. Thomas's; G. S. R. Little, St. Bart.'s; L. Lodge, London; J. Loofe, Leeds; V. J. Lopez, St. Mary's; S. H. Lubner, London; Marjorie N. Lunn, Royal Free; G. D. McLean, St. Thomas's; K. M. Macleod, Edinburgh; F. G. Maitland, St. Thomas's; H. S. A. Malik, Bombay; R. W. Malim and C. E. P. Markby, St. Thomas's; J. H. G. Mason, Middlesex; Ruth Milne, Royal Free; W. A. Mirza, Lucknow; C. J. Morgan, St. Bart.'s; H. C. Muirhead and F. J. Napier, Guy's; L. B. Neel, St. George's; Ethelwyn M. Newham, Royal Free; A. M. Nodine, Middlesex; C. L. Oakley, Univ. Coll.; T. C. Outred, Guy's; M. Owen, Univ. Coll.; C. E. S. Oxley, St. Thomas's; A. P. M. Page, St. Bart.'s; G. H. Pearce, Univ. Coll.; R. B. Peckham, Guy's; A. Phillips and M. Phillips, London; F. E. Pilkington, King's Coll.; A. C. Price, Guy's; Ruth Pumphrey, Univ. Coll.; S. Ramanathan, King's Coll.; E. H. Rink, Guy's; S. L. Robert, Bombay and Birmingham; H. E. W. Roberton, St. Bart.'s; J. M. Robertson, Guy's; Victoria M. Robinson, King's Coll.; Helen E. Rodway, Royal Free; J. D. Rose, Durham; J. Ross, Charing Cross; Ruth Sandeman, Univ. Coll.; F. M. Sandford, St. Thomas's; M. H. Shah, Lahore; Violet R. Sharp and Rosalie Shoenberg, Royal Free; M. Shorvon, King's Coll.; S. Silman, Leeds; H. Singh, Lahore; Margaret Skelton, Univ. Coll.; W. L. Sleight, Bristol; W. M. Smith and B. Southwell, Guy's; N. Stevens, St. Thomas's; Marjorie V. N. Sudds, Royal Free; A. L. Thomas, Guy's; Edith G. N. Thomas, Charing Cross; A. W. Vaisey, D. S. Valentine, and J. N. Vasudeva, St. Thomas's; G. M. Vatsalya, Royal Free; W. N. P. Wakeley, King's Coll.; Doris E. C. Walker, Univ. Coll.; Margaret M. White, Royal Free; G. W. Whittall, St. Thomas's; A. B. Williamson, Durham; Mary Wills, Royal Free; H. A. M. Wintle, St. Thomas's; F. S. Winton, St. George's; W. Woolley, Bristol; and C. Wright, Univ. Coll.

Surgery.—R. W. F. Alles and P. B. Ascroft, Middlesex; A. K. Basu, Univ. Coll.; D. A. Beattie, St. Bart.'s; F. R. Beetham, Leeds; D. H. Bolton, St. Thomas's; A. F. Bowling, Leeds; Julia A. Boyd, Royal Free; B. R. Bramwell and R. O. Brooks, Manchester; L. V. O. Brown, Guy's; C. C. Bryson, Middlesex; W. J. Burgess, St. Bart.'s; E. C. Campbell, St. Mary's; F. W. Chippindale, Guy's; S. N. Chopra, Edinburgh; W. F. Church, St. Bart.'s; H. J. Croot, Guy's; H. L. G. Davies, Cardiff and St. Bart.'s; T. J. Davies, Univ. Coll.; C. M. Dell, St. Thomas's; C. G. S. De Silva, Guy's; A. L. Devi, Royal Free; M. B. Dixit, St. Thomas's; P. G. Dowdell and D. G. Evans, Univ. Coll.; R. H. Franklin and A. J. Gibbs, St. Thomas's; Rebecca Goldstein, Univ. Coll.; R. T. S. Goodchild, London; A. H. Grace, St. Bart.'s; B. Halfpenny, Middlesex; H. C. Halge and H. C. Harley, St. Mary's; D. Hay, St. Bart.'s; J. Henry, Leeds; R. Herring, St. Mary's; R. S. Hodge, Univ. Coll.; S. W. Holmes, St. Mary's; Ethel E. Hopper, Charing Cross; G. L. Jones, St. Thomas's; H. J. Knight, St. Mary's; G. F. Langley, Bristol; L. J. Lannaman, St. Bart.'s; Grace Law, King's Coll.; V. J. Lopez, Madras and St. Mary's; S. McDonald, Cambridge and Durham; J. D. McVean, Manchester; B. R. Medlycott, Guy's; H. C. Mehta, Middlesex; P. D. Mottet, Univ. Coll.; F. Murray, London; A. M. Nodine, Middlesex; C. L. Oakley, Univ. Coll.; H. N. Palmer, King's Coll.; G. A. Y. Parker, St. Bart.'s; C. F. L. Patterson, St. George's; D. D. Payne, St. Thomas's; L. D. Pringle, Guy's; Ruth Pumphrey, Univ. Coll.; T. P. V. Rao, St. Thomas's; P. V. Reading, Guy's; J. M. Reese, St. Mary's; J. I. Rerrie, St. Bart.'s; Colleen Rice, Charing Cross; B. P. Robinson, Manchester; J. D. Rose, Durham; K. M. Ross, St. Bart.'s; J. F. Sandow, Middlesex; J. D. Scott, St. Bart.'s; J. M. Searle, London; Phyllis F. L. Simon, Royal Free; R. H. B. Snow, St. Thomas's; J. K. Stanger, Durham; F. H. Stevenson, Guy's; G. E. M. Turner, Middlesex; J. N. Vasudeva, Punjab and St. Thomas's; Doris E. C. Walker, Univ. Coll.; S. Weinstein, London; A. J. Whitaker, Univ. Coll.; Margaret M. White, Royal Free; G. W. Whittall, St. Thomas's; E. G. Wilkins, Middlesex; R. C. Williams, St. Thomas's; and T. G. Williams, Middlesex.

Pathology.—A. N. Barker, St. Thomas's; K. Baxter, Manchester; W. L. H. L. Bell, St. George's; S. Bochenek, St. Bart.'s; Kathleen M. Bodkin, Birmingham; P. Brown, London; J. Carlton, Guy's; W. F. Church; St. Bart.'s; D. O. Clark, St. Thomas's; H. Coorland, St. Bart.'s; W. C. Cresdee, St. George's; R. E. M. Fawcett, St. Bart.'s; D. R. Goodfellow, Manchester; A. H. Grace, St. Bart.'s; Charlotte Gray, Univ. Coll.; C. J. K. Hamilton, Liverpool; B. Isaac, St. Mary's; H. B. Jackson, Middlesex; R. H. Leaver, St. Bart.'s; J. O. McCarter, Manchester; K. I. Nicholls, Bristol; C. L. Oakley, Univ. Coll.; A. P. M. Page, St. Bart.'s; A. Phillips, London; N. S. Plummer, Guy's; H. Ramsay, Middlesex; Louise Rees, Charing Cross; J. M. Robertson, Guy's; M. W. Robinson, Manchester; T. G. Robinson and B. Southwell; Guy's; T. Standring, King's Coll.; R. Stanley, St. Thomas's; J. G. Stewart, Westminster, K. S. Thompson, London; A. W. Vaisey, St. Thomas's; O. T. Wade, Leeds; W. N. P. Wakeley, King's Coll.; A. J. White, Middlesex; G. P. B. Whitwell, Guy's; and Edna M. Wilson, Charing Cross.

OLD EPSOMIAN CLUB.—The annual general meeting of this club will be held at the Hotel Great Central, Marylebone, N.W., at 6.30 P.M. on Thursday, Dec. 12th, and will be followed by the annual dinner at 7.15 for 7.30. The chair will be taken by Brigadier-General G. T. Mair, and all Old Epsomians, whether members of the club or not, are invited to be present on this occasion. Attention is directed to the change of restaurant on this particular occasion.

MEDICO-LEGAL SOCIETY.—A meeting of this Society will be held at 11, Chandos-street, Cavendish-square, W., on Thursday, Nov. 28th, at 8.30 P.M. when Mr. F. Llewellyn Jones, M.P., will read a paper on the League of Nations and the International Control of Dangerous Drugs.

As already announced, the annual dinner will be held at the Holborn Restaurant, London, W.C., at 7.15 P.M., on Friday, Dec. 13th, with the President, Lord Riddell, in the chair.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—A quarterly meeting of the College was held on Nov. 5th with Dr. R. A. Fleming, the President, in the chair.

Dr. William Thomson Munro was introduced and took his seat as a Fellow. Dr. Roy Mackenzie Stewart and Dr. William Malcolm McAlister were elected to the Fellowship.

The Hill Pattison-Struthers Bursary in Anatomy and Physiology was awarded to James Alexander Crawford, and the Hill Pattison-Struthers Bursary in Clinical Medicine to Dr. William Veitch Anderson. The Wood Bursary was awarded to John Macgill Drever.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the annual meeting on Nov. 4th Dr. John F. Fergus was elected President in succession to Mr. G. H. Edington. The other office-bearers appointed are:—Visitor: Mr. R. Barclay Ness. Hon. treasurer: Dr. J. H. Macdonald. Hon. librarian: Dr. E. H. L. Oliphant. The representative on the General Medical Council is Mr. Edington, and the councillors are Prof. J. M. Munro Kerr, Mr. Thomas Kay, Mr. John Patrick, Dr. R. M. Buchanan, Mr. J. Galbraith Connal, Prof. C. C. Douglas, Dr. John Gracie, Prof. Andrew Allison, Dr. J. Souttar McKendrick, and Mr. W. Ferguson Mackenzie. It may be noted that Dr. J. F. Fergus's father and his brother, the late Mr. Freeland Fergus, served as Presidents of the Faculty.

In leaving office as President Mr. Edington presented to the Faculty an interesting memorial of their founder, Mr. Peter Lowe.

The gift took the form of the first edition of Lowe's "Whole Course of Chirurgerie," published by Thomas Purfoot, London, in 1597. The library already contained copies of the second, third, and fourth editions of Lowe's "Chirurgerie," and, with this presentation, it now possesses a complete set of all the works and editions of Peter Lowe.

Copies of the first edition of this book are extremely rare. One is known to be in the Radcliffe Library, Oxford; another was in the library of the Royal Medical and Chirurgical Society of London; and a third copy is in the possession of the Royal College of Physicians of Edinburgh. The destination of a fourth copy, sold in London in October, 1924, for £120, is unknown. The copy presented to the Faculty Library by Mr. Edington is slightly imperfect, lacking some few of the end pages. Otherwise it is in very good condition.

The Faculty accepted the interesting gift with enthusiasm, and cordially thanked the donor.

GLASGOW UNIVERSITY CLUB OF LONDON.—This club will dine at the Trocadero Restaurant, Piccadilly-circus, on Friday, Nov. 29th, with Prof. F. O. Bower, F.R.S., President-elect of the British Association, in the chair, and Sir Donald MacAlister, Chancellor of the University, as the principal guest. Any Glasgow University men who, though not members of the club, desire to be present are requested to communicate with the hon. secretaries, 62, Harley House, N.W. 1.

DECORATIONS AND DISTINCTIONS.—The King has given Royal licence and authority to Dr. Herbert Chavasse Squires to wear the Insignia of the Order of the Nile (Third Class) conferred upon him by the King of Egypt in recognition of valuable services rendered by him. Dr. D. J. Mackintosh, C.B., M.V.O., has been made a Deputy Lieutenant of the County and City of Glasgow. Dr. James Cran has been appointed an Unofficial Member of the Legislative Council of the Colony of British Honduras.

JOINT TUBERCULOSIS COUNCIL.— A post-graduate course in relation to tuberculosis is to be held in the X Ray Department of the Hospital for Diseases of the Chest, Brompton, London, S.W., from Monday to Saturday, Nov. 25th–30th, conducted by Dr. Stanley Melville and members of the staff. The course will consist largely of demonstrations on screening, with lectures on technique, the surgical aspect of tuberculosis and dental radiography. Arrangements are being made for refresher work in out-patient department or wards, and a visit to a factory to see the latest things in X ray apparatus. Application to the hon. sec. of the Council at 1, Gordon-square, London, W.C. 1.

COLLEGE OF PHYSICIANS OF PHILADELPHIA: *Alvarenga Prize.*—The next award of this prize, amounting to about three hundred dollars, will be made on July 14th, 1930. Essays upon any subject in medicine will be considered provided that they have not appeared in print in any form, and have not been presented elsewhere in competition for a prize. They must be in prescribed form and must be received by the secretary of the College by May 1st. The Alvarenga prize for 1929 has been awarded to Dr. George M. Darrance, of Philadelphia, for an essay on Congenital Insufficiency of the Palate.

HOSPITAL COSTS AT NOTTINGHAM.—During the first six months of the present year the average weekly cost of each in-patient at Nottingham General Hospital was £2 14*s.* 10½*d.*, and the total cost per patient £7 8*s.* 5*d.* The average cost per bed occupied amounted to £71 6*s.* 0½*d.*: the average stay was 18·8 days.

NEW HOSPITAL AT NOTTINGHAM.—On Nov. 5th Princess Helena Victoria visited Nottingham and opened the new women's hospital, which has cost about £40,000, and will take the place of two older and smaller institutions. Accommodation is provided for 60 beds, and the new wing, which is shortly to be undertaken at a cost of about £12,000, will provide another 40 beds. The hospital has been opened free of debt.

VOLUNTARY HOSPITAL PATIENTS IN POOR-LAW INFIRMARIES.—The governors of the Royal Hospital, Wolverhampton, have arranged with the Wolverhampton board of guardians that patients recommended by its honorary staff shall, in given circumstances, be received for treatment in the New Cross Poor-law Hospital. This course has become desirable owing to the inability of the Royal Hospital to meet pressing needs. The guardians will be paid an agreed sum where patients or their dependents have contributed for a reasonable time to the funds of Wolverhampton Hospital.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, Nov. 19th.—5.30 P.M., GENERAL MEETING OF FELLOWS. Ballot for election to the Fellowship. 8 P.M., PATHOLOGY. Communications:—Dr. G. S. Wilson: The Isolation of *Brucella abortus* from a Human case of Undulant Fever. Dr. C. R. Harington: The Chemistry of the Thyroid. Demonstrations:—Dr. W. G. Barnard: Three Specimens of Ependymoma. Fellows and Members of other sections are cordially invited to attend this meeting.

THURSDAY.—5 P.M., DERMATOLOGY (Cases at 4 P.M.). Dr. H. W. Barber: Case for Diagnosis. Dr. H. W. Barber: ? Lupus Erythematosus of the Oral Mucous Membrane. Dr. G. B. Dowling: Norwegian Scabies: Pityriasis Lichenoides et Varioliformis Acuta. Dr. W. J. O'Donovan: Lichen Spinulosus. Dr. A. C. Roxburgh: Pityriasis Lichenoides et Varioliformis Acuta (with section).—Other cases will be shown.—ANNUAL DINNER OF THE SOCIETY. May Fair Hotel, Berkeley-square, London, W., at 7.30 for 8 P.M.

FRIDAY.—5 P.M., DISEASE IN CHILDREN (Cases at 4.30 P.M.). Cases will be shown. 8 P.M., EPIDEMIOLGOY and TROPICAL DISEASES. Special Discussion on Brucella Infections in Man and Animals. Openers: Dr. W. Dalrymple-Champneys (Epidemiology), Dr. J. T. Duncan (Tropical). Other speakers will also take part.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

THURSDAY, Nov. 21st.—8.15 P.M. A Laboratory Meeting will be held at the London School of Hygiene and Tropical Medicine, Keppel-street, Gower-street, when the following amongst others will give Demonstrations: Drs. Andrew Balfour, W. Broughton Alcock, C. A. Hoare, E. Hindle and A. C. Stevenson, Colonel S. P. James, Messrs. H. S. Leeson, M. E. MacGregor, J. F. Marshall and J. Staley, Drs. A. Robertson, J. W. Scharff, A. L. Sheather and A. C. Stevenson, H. M. Shelley, Miss E. Sikes, Prof. Warrington Yorke, Dr. C. M. Wenyon, V. B. Wigglesworth.

CHELSEA CLINICAL SOCIETY.

TUESDAY, Nov. 19th.—7.30 P.M., Dinner at Hotel Rembrant, Thurloe-place, S.W., followed by discussion on Treatment of Climacteric. Opened by Dr. F. J. McCann.

LONDON CLINICAL SOCIETY.

TUESDAY, Nov. 19th.—8.45 P.M. (at the London Temperance Hospital), Meeting. Cases at 8.30 P.M.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Nov. 18th., to SATURDAY, Nov. 23rd.—MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. Mon., 5 P.M., lecture by Mr. A. E. Mortimer Woolf: Hæmorrhoids. No fee. Two lectures, especially suitable for M.R.C.P. candidates.—Tues., 8.30 P.M., Dr. Langdon Brown: Recent Advances in Endocrinology. Fri., 8.30 P.M., Sir William Willcox: Some Points in Connexion with the Toxic Effects of Lead, Arsenic, Morphine, Cocaine.—PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N. Mon., 2.15 P.M., Ward Round by Dr. A. J. Whiting. No fee.—ROYAL EYE HOSPITAL, Southwark, S.E. Wed.,

3 P.M., demonstration by Mr. A. D. Griffith. No fee.—LONDON LOCK HOSPITAL, 91, Dean-street, W. Post-graduate course in venereal disease. Daily, every afternoon and evening, for two weeks.—ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, W. Intensive course for two weeks.—WEST END HOSPITAL FOR NERVOUS DISEASES, 73, Welbeck-street, W. Lecture-demonstrations, illustrated by cases, daily at 5 P.M. Further particulars from the Fellowship of Medicine.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.

MONDAY, Nov. 18th.—10 A.M., Dr Dowling: Skin Department. 11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Mr. Sinclair: Surgical Wards.

TUESDAY.—10 A.M., Medical Registrar: Medical Wards. 2 P.M., Dr. Shaw, Medical Out-patients. 2.30 P.M., Sir Henry Simson: Gynæcological Operations.

WEDNESDAY.—10 A.M., Dr. Burnford: Medical Wards. 2.30 P.M., Mr. Donald Armour: Surgical Wards. Dr. Scott Pinchin: Medical Out-patients.

THURSDAY.—11.30 A.M., Mr. Simmonds: Demonstration of Fractures. 2 P.M., Mr. Bishop Harman: Eye Department. 2 P.M., Mr. MacDonald: Genito-Urinary Department.

FRIDAY.—10 A.M., Dr. Pritchard: Medical Wards. 12 noon, Dr. Shaw: Clinical Demonstration. 2 P.M., Mr. Vlasto: Throat, Nose and Ear Department.

SATURDAY.—9 A.M., Mr. Vlasto: Throat, Nose and Ear Operations. 9.30 A.M., Dr. Burnford: Bacterial Therapy Department. 10 A.M., Dr. Owen: Medical Children's Department.

Daily, 10 A.M. to 5 P.M., Medical, Surgical and Special Out-patients, Operations, Ward Visits, Anæsthetic Courses.

SOUTH-WEST LONDON POST-GRADUATE SOCIETY, St. James's Hospital, Ouseley-road, Balham, S.W.

WEDNESDAY, Nov. 20th.—4 P.M., Mr. Norman Haire: Contraception Technique.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, Nov. 18th.—2.30 to 5 P.M.: Medical, Surgical, and Gynæcological Clinics. Operations.

TUESDAY.—2.30 to 5 P.M.: Medical, Surgical, Ear, Nose and Throat Clinics. Operations.

WEDNESDAY.—2.30 to 5 P.M.: Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M.: Dental Clinics. 2.30 to 5 P.M.: Medical, Surgical, Nose, Throat and Ear Clinics. Operations.

FRIDAY.—10.30 A.M.: Throat, Nose and Ear Clinics. 2.30 to 5 P.M.: Surgical, Medical, and Children's Diseases Clinics. Operations. 4.30 P.M.: Demonstration on Practical Neurology by Dr. L. R. Yealland.

NATIONAL HOSPITAL, Queen-square, W.C.

MONDAY, Nov. 18th.—12 noon, Dr. Greenfield: Pathology of Nervous System. 2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Dr. Collier: Muscular Atrophies.

TUESDAY.—2 P.M., Dr. Walshe: Out-patient Clinic. —3.30 P.M., Mr. Armour: Surgery of Compression Paraplegia.

THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Walshe: Vascular Lesions of Nervous System.

FRIDAY.—12 noon, Dr. Purdon Martin: Anatomy and Physiology of Nervous System. 2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Dr. Grainger Stewart: Clinical Lecture.

ST. PAUL'S HOSPITAL, Endell-street, W.C.

WEDNESDAY, Nov. 20th.—4.30 P.M., Mr. Claude Mills: Some Interesting Urological Cases.

KING'S COLLEGE FOR HOUSEHOLD AND SOCIAL SCIENCE, Campden Hill-road, W.

FRIDAY, Nov. 22nd.—5 P.M., Prof. V. H. Mottram: Human Nutrition. (Last of six lectures.)

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

MONDAY, Nov. 18th.—5 P.M., Prof. Leonard Hill: Clothing and Climate.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road.

FRIDAY, Nov. 22nd.—4 P.M., Mr. J. D. McLaggan: The Treatment of Chronic Suppurative Otitis Media.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL, Denmark Hill, S.E.

THURSDAY, Nov. 21st.—9 P.M., Mr. John Everidge: Hæmaturia: Its Diagnosis and Significance.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, Nov. 19th.—3.15 P.M., Mr. W. B. Gabriel: The Treatment of Acute Suppuration.

BRITISH SCIENCE GUILD.

TUESDAY, Nov. 19th.—4.30 P.M. (in the Goldsmiths' Hall, Foster-lane, E.C.), Sir Walter M. Fletcher: Medical Research: the Tree and the Fruit.

PEOPLE'S LEAGUE OF HEALTH, 12, Stratford-place, W.

FRIDAY, Nov. 22nd.—6 P.M. (at the Medical Society of London, 11, Chandos-street, W.), Dr. E. G. Howe: Infant, Youthful, Adolescent, and Adult Life.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

WEDNESDAY, Nov. 20th.—4 P.M., Mr. Malcolm Donaldson: Early Diagnosis and Treatment of Malignant Disease.

CHADWICK PUBLIC LECTURES.

FRIDAY, Nov. 22nd.—8.15 P.M. (at the Royal Society of Arts, John-street, Adelphi), Prof. A. E. Boycott: The Causes of Cancer.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, Nov. 19.—5 P.M., Dr. J. A. Drake: Leprosy.

THURSDAY.—5 P.M., Dr. A. Whitfield: Tuberculosis Cutis (1).

ANCOATS HOSPITAL, Mill-street, Manchester.

THURSDAY, Nov. 21st.—4.15 P.M., Mr. P. McEvedy: Treatment of Hæmorrhoids.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.

FRIDAY, Nov. 22nd.—3.30 P.M., Mr. Mackie: Ophthalmic States related to Gastro-Intestinal Disorders.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.

TUESDAY, Nov. 19.—4.15 P.M., Mr. W. R. Douglas: Some Recent Advances in the Surgery of Cancer.

FRIDAY.—4.15 P.M., Dr. R. Ellis: How the Electrocardiograph helps in Diagnosis and Treatment.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.

WEDNESDAY, Nov. 20th.—4.15 P.M. (in the Western Infirmary), Mr. Roy F. Young: Demonstration of Surgical Cases.

Appointments.

BELL, J. H., M.B., Ch.B. Edin., has been appointed Casualty House Surgeon at the Salford Royal Hospital.

DUGGAN, NORMAN, M.B., Ch.B. Manch., F.R.C.S. Eng., Honorary Surgeon to Worcester General Infirmary.

GLEAVE, H. H., M.B., Ch.B. Leeds., Senior Lecturer in Pathology in the University of Liverpool.

LINDSAY, ELIZABETH M., M.B., Ch.B. Edin., Medical Officer of the Parish of Creich and Superintendent of Swordale Institution, Bonar-Bridge, Scotland.

PATON, R. Y., M.B., B.Chir. Camb., Assistant Surgeon, Royal National Orthopædic Hospital.

ROBERTS, J. T. C., M.B., Ch.B. Liverp., Assistant Medical Officer of Health, Lewisham.

SAUNDERS, M. J., L.R.C.P. & S.I., Certifying Surgeon under the Factory and Workshop Acts for the Portland District of Dorset.

STRUTHERS, J. A., M.R.C.P. Lond., D.P.H., Physician to the Willesden General Hospital.

Vacancies.

For further information refer to the advertisement columns.

Altrincham General Hospital.—H.S. At rate of £125.

Barnsley, Beckett Hospital and Dispensary.—H.P. £140.

Barry Surgical Hospital.—H.S. At rate of £200.

Birmingham City Babies' Hospital.—Res. M.O. At rate of £150.

Birmingham, Dudley-road Hospital.—Surgeon. £700.

Birmingham Royal Cripples Hospital.—H.S. At rate of £200.

Blackburn and East Lancashire Royal Infirmary.—Fourth H.S. £130.

Bolton Infirmary and Dispensary.—H.S. £150. Also Asst. H.S. £100.

Brighton, Royal Sussex County Hospital.—Hon. Surg. Clin. Asst. Also H.S. and Cas. H.S. £150 and £120 respectively.

Bristol, Stoke Park Colony.—Director of Medical Services. £1200.

Brookfield Orthopædic Hospital, Hale End, Woodford Green.—Anæsthetist. 1 guinea per attendance.

Cardiff, King Edward VII. Welsh National Memorial Association.—Area Asst. Tuber. Physician. £600.

Chelsea Hospital for Women, Arthur-street, S.W.—Jun. H.S. At rate of £100. Also Registrar. £50.

Chester Royal Infirmary.—Two H.S.'s. Each £150.

City of London Hospital for Diseases of Heart, &c., Victoria Park, E.—Res. M.O. £250. Also H.P. At rate of £100.

City of London Maternity Hospital, City-road, E.C.—Asst. Res. M.O. At rate of £80.

Colonial Medical Service.—M.O.'S. East Africa, £600. Malaya, $500 per month.

Dreadnought Hospital, Greenwich.—H.P. and H.S. At rate of £110.

Ealing Borough.—Asst. M.O.H. £600.

East London Hospital for Children, &c., Shadwell, E.—Surgeon to Nose, Throat, and Ear Dept.

Epsom, Surrey, The Manor.—Res. Med. Supt. £671.

Essex County Sanatorium, Black Notley, near Braintree.—Res. M.O. £650.

Evelina Hospital for Children, Southwark, S.E.—Hon. Surgeon to Out-Patients. Also H.S. At rate of £120.

Glasgow, Royal Hospital for Sick Children.—Two H.S.'s.

Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—H.P. At rate of £135.

Hampstead General and North-West London Hospital, Haverstock-hill, N.W.—Cas. M.O. and Cas. Surg. O. Each at rate of £100.

Hospital for Sick Children, Great Ormond-street, W.C.—H.S. and H.P. Each at rate of £100. Also Part-Time Jun. Cas. O. At rate of £150.

Ipswich, Heathfields Infirmary, &c.—Asst. Res. M.O. £250.

Leeds Jewish Herzl-Moser Hospital.—Res. M.O. £100.

Lincoln, Bracebridge Mental Hospital.—Third Asst. M.O. £350.

Manchester, Salford Royal Hospital.—H.P. At rate of £125.

Metropolitan Ear, Nose and Throat Hospital, Fitzroy-square, W.—H.S. £150.

Mildmay Mission Hospital, Austin-street, Bethnal Green, E.—Sen. Res. M.O. Also Jun. Res. M.O. At rate of £140 and £100 respectively.

Mothers' Hospital, Clapton, E.—Hon. Asst. Obstet. S.
Nairobi Municipal Council.—M.O.H. £1100.
National Hospital, Queen-square, W.C.—Res. M.O. £200.
Newark Hospital and Dispensary.—Res. H.S. At rate of £150.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Two Hon. Asst. S.'s.
Northwood, Mount Vernon Hospital.—H.S. for Cancer Section. £200.
Perth Infirmary.—Jun. H.S. £75.
Plymouth, South Devon and East Cornwall Hospital.—Res. Surg.O. Also H.S. At rate of £150 and £100 respectively.
Prince of Wales's General Hospital, Tottenham, N.—Hon. Clin. Assts.
Rochdale Infirmary and Dispensary.—Jun. H.S. £175.
Rochford, Poor-law Hospital.—Jun. Asst. M.O. At rate of £225.
Royal College of St. Katharine, Poplar, E., Maternity and Child Welfare Centre.—Asst. M.O. £1 11s. 6d. per session.
Royal College of Surgeons of England.—Examiner in Dental Surgery.
Royal Free Hospital, Gray's Inn-road, W.C.—H.S.'s, H.P.'s, &c. Each £150. Second H.P. and Obstet. Dist. Asst. £100. Surg. Reg. £200. Half-time Gynæcological Reg. and Med. Reg. Each £100.
St. Mary's Hospital, W.—Med. Reg. to Out-patients. £200.
St. Thomas's Hospital, S.E.—Two Surg. Reg.'s. Also Med. Reg. for Children's Dept. Each £250.
Sheffield, Jessop Hospital for Women.—Asst. H.S. At rate of £100.
South London Hospital for Women, South Side, Clapham Common, S.W.—Clin. Assts.
Southampton, Royal South Hants and Southampton Hospital.—Asst. H.S. and Res. Anæsthetist. At rate of £140.
South Eastern Hospital for Children, Sydenham, S.E.—Res. M.O. At rate of £75.
Stamford, Rutland and General Infirmary.—H.S. At rate of £200–£250.
Surrey County Council.—Asst. M.O. £600.
Tilbury Hospital, Essex.—Med. Supt. £250. Also H.S. At rate of £150.
University College Hospital, Gower-street, W.C.—Hon. Asts.
Warrington Infirmary and Dispensary.—Jun. H.S. £175.
West London Hospital, Hammersmith-road, W.—H.P., H.S. Aural and Ophth. H.S. and Asst. Cas. O. Each at rate of £100. Also Asst. Surgeon Dentist.
Windermere, Ethel Hedley Hospital for Crippled Children.—Res. H.S. At rate of £150.
Windsor, King Edward VII. Hospital.—Two H.S.'s. Each £100.
Worcester City Council.—M.O.H. £900.

The Chief Inspector of Factories announces the following vacant appointments for Certifying Factory Surgeons: Shefford (Beds), Eckington (Derbyshire), Wadebridge (Cornwall), Calvert (Bucks), and Llanfyllin (Montgomery).

Births, Marriages, and Deaths.

BIRTHS.

CRAIG.—On Nov. 6th, at Cheadle Hulme, the wife of Dr. Nicholas Craig, of a daughter.
FLOWER.—On Nov. 7th, the wife of Dr. Norman Flower, Yeovil, of a son.
HOLMES.—On Nov. 4th, at Hoghton-street, Southport, the wife of John Holmes, M.B., M.R.C.P., of a son.
HORSBURGH.—On Nov. 3rd, at Lyndhurst, Manor Court-road, Nuneaton, the wife of Dr. P. G. Horsburgh, of a son.

MARRIAGES.

RICHARDS—HODGKINSON.—On Oct. 5th, at Shiraz, Persia the Rev. J. R. Richards to Katharine Mary Hodgkinson, M.B., B.Ch., only daughter of Mr. and Mrs. W. E. Hodgkinson, Inglewood St. Michael's, Tenterden, Kent.

DEATHS.

FALKINER.—On Oct. 30th, at Dublin, Ninian McIntire Falkiner, M.D., F.R.C.P.I., late of Tyone, Healthfield-road, Terenure, County Dublin.
GILES.—On Nov. 4th, at Floraire, Torquay, Frederick William Giles, M.R.C.S., M.B.
GREENWOOD.—On Nov. 7th, at Hanover House, Regent's Park, Edwin Clinson Greenwood, O.B.E., M.R.C.S., L.R.C.P., Medical Superintendent to St. John and Elizabeth Hospital.
SEALEY.—On Nov. 3rd, at Arundel-road, Tunbridge Wells, Francis Marmaduke Sealey, J.P., M.R.C.S., L.R.C.P., in his 71st year.
SWINHOE.—On Nov. 10th, suddenly, at The Close, Swindon, George Rodway Swinhoe, M.R.C.S., aged 61.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices o Births, Marriages, and Deaths.

BRITISH HOSPITALS ASSOCIATION.—This association has just been registered as a company limited by guarantee, not having a share capital, to acquire the undertaking and such of the assets and liabilities of the British Hospitals Association as may lawfully be acquired. The management is vested in a Council, the first members of which include Sir Arthur Stanley, Lord Knutsford, and Lord Stanmore. The hon. sec. is Mr. R. H. P. Orde, and the registered office, 32, Gordon-square, W.C.

Notes, Comments, and Abstracts.

RACIAL STUDY IN SCOTLAND.

IN a presidential address to the Aberdeen Medico-Chirurgical Society on Oct. 31st Prof. Alexander Low pointed out that while undoubtedly hygiene and better nutrition were important factors making for better health, attention should also be paid to racial inheritance. In Scotland much less displacement of population by invasion had taken place than was commonly supposed, and racial types could be traced in varying proportions in different parts of the modern population. Thus the study of racial strain was a matter of practical importance.

The present inhabitants of Scotland, said Prof. Low, included a primitive substratum from palæolithic days, together with representatives from the Nordic, Mediterranean and Alpine races. The tall, fair, long-headed Nordic was more suited to rural than urban conditions, and there was evidence (E. G. Bowen) that in towns he was especially liable to diseases, such as tuberculosis, when depressed into industrial poverty. The broad-headed Alpine was an element that entered largely into the make-up of the people in the north-east of Scotland and was characterised by patience, thrift, and caution. The short, dark, long-headed Mediterranean type was found in the poorer quarters of the large cities—for example, in Glasgow—where they seemed to resist disease caused by overcrowding. In Glasgow the infant mortality had shown a uniform fall, and it was argued that the large proportion of immigrant Irish and Jews had added vigour to the native stock; but the suggestion was put forward that in Glasgow there was a large Mediterranean element in the population and that this dark strain encountered the adverse conditions of city life more successfully than the Nordic.

In attempting to record developmental changes and their correlation, if any, with different race types, Prof. Low had come to the conclusion that growth-promoting internal stimuli differed in different races. Some seven years ago with the coöperation of Prof. R. G. McKerron at the Aberdeen Maternity Hospital and Dr. James A. Stephen of the Child Welfare Centre, he had begun to follow up growth in infants and had been led to study how far and in what way racial type affected development.

Knowledge of the physical characteristics of the pre-school child had previously been based on single measurements of groups of infants, and there was thus no way of estimating the degree of variation in the same child from year to year. To follow the growth of individual children was slow and laborious, and though for the past seven years many had been under observation the work was still far from complete. About 1000 infants had been examined at birth and so far as possible re-examined yearly.

In the Aberdeen infants examined the average birth-weight of the male infant was 3458 g. (7·625 lb.) and of the female 3444 g. (7·59 lb.). Thus there was little difference between the average weights of the two sexes, but infants born in Aberdeen were from six to eight ounces heavier at birth than those born in other towns in Great Britain. The average birth-length of males was 49·2 cm. (19·3 inches) and of females 48·7 cm. (19·18 inches), about one inch less than the usually accepted average birth-length. The average weight of the same group of infants at 12 months was 9240 g. (20·37 lb.) for males and 8306 g. (18·312 lb.) for females, and the average lengths at 12 months for males was 72·0 cm. (28¾ inches) and females 70·1 cm. (27⅝ inches).

THE INDICTMENT OF CERTAIN INDIAN CUSTOMS.

OF the large crop of books and newspaper articles which followed the publication in 1927 of "Mother India" the great majority have already been consigned to oblivion, but some of them came from sources which it is impossible to disregard, and Mr. Field has performed a useful service in summarising the case for and against Miss Mayo's indictment of some Indian customs.[1] He is particularly well qualified for this task, since he was at one time working in close association with Miss Mayo, and has had access to documents in her possession.

In such a mass of evidence as was accumulated by Miss Mayo it was inevitable that some inaccuracies should occur, but with remarkably few exceptions her statements are substantiated. This, indeed, one would expect from her previous record which is detailed by Mr. Field and shows that "Mother India" was by no means her first adventure in the field of social research. Her book met with a hostile reception from the Indian press as a whole, but criticisms were not all unfavourable. It is a curious fact

[1] After Mother India. By Harry H. Field. London: Jonathan Cape. 1929. Pp. 299. 7s. 6d.

that the most striking evidence in favour of Miss Mayo's work comes indirectly from the great Hindu mystic Mohandas Karamchand Gandhi himself, although in an article in his own paper he attacked it with vigour. The Hindu customs arraigned by Miss Mayo are the very ones which Mr. Gandhi himself deplores

It has been said that Miss Mayo's book is untrue to facts and unjust to the people of India. The book certainly came as a shock to many European friends of India, as well as to Indians themselves, and it may fairly be argued that to enter the country through a temple of Kali, and to concentrate on social abuses throughout, is not to see it whole. To this Miss Mayo replies that she does not claim to give a complete picture of Indian life, nor pretend to dwell upon the virtues and accomplishments of the Indian people. The great question, after all, is what are the results of Miss Mayo's outspoken criticisms. Some of these are already not far to seek, although, as Mr. Field says, it will probably be decades before a comprehensive estimate can be made. For the present, however, they are sufficiently well summed up in a paragraph from the *Statesman* (Calcutta) of April 11th, 1929, which runs as follows :—

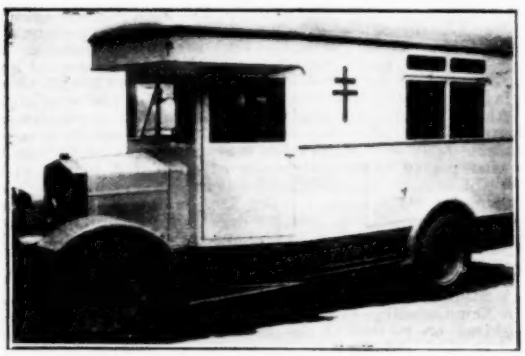
"We believe that with all its faults of over-statement and exaggeration Miss Mayo's first book ("Mother India") did definite and traceable service. It provoked a vast torrent of indignation, but it gave strength to all the reformers who are endeavouring to change conditions in India. It shocked people out of complacency. Indians saw how they were presented to western eyes. . . . Nobody could longer blind himself to the fact that child marriage, the prevention of the remarriage of widows, the treatment of the outcaste and cruelty to animals outraged the western peoples. . . . Reform must come from within. Happily, there is evidence on all hands that Indian opinion is changing and that the new movement is finding leaders. When it has triumphed, India itself will be able to take a more charitable view of those who first uttered the thoughts of the West."

New legislation on the subject of the age of marriage has recently borne testimony to the influence which "Mother India" has brought to bear on social problems, for it can hardly be contested that the wave of feeling on this question was partly due to Miss Mayo's book.

AN ANTI-TUBERCULOSIS MOTOR VAN.

THE Fiat Motor Car Company of Turin has presented to the Red Cross Society at Rome a travelling dispensary equipped with the latest appliances of medical science for the campaign against tuberculosis. It is intended that vehicles of this type should carry the campaign into rural districts and remote mountain villages devoid of doctors and hospitals. The running cost is said to be low, for about 20 visits can be made in a radius of 20 miles or so

FIG. 1.



The motor van bearing the combined red-cross anti-tuberculosis symbol.

during the day at a cost of about two shillings per consultation. The equipment, supplied by the Itan Company of Milan, comprises a complete X ray installation, microscope table, apparatus for analysis and sterilisation, as well as a projector to illustrate popular lectures on health and prophylaxis. The whole is mounted on an all-metal body motor chassis, where it can be used with the same efficiency and safety as in hospital. To avoid the diffusion of radiation, the tube is properly protected and an "antix" rubber protector screens off secondary rays. All parts of the installation which come into contact with the patient are covered with easily changeable or disinfectable paper and celluloid screens. Apparatus carrying high tension current is insulated from surrounding objects, and all metal parts are earthed. The generator, which is outside the dispensary, alongside the chauffeur, furnishes sufficient current for an X ray photograph of the thorax to be taken in a fraction of a second. The stores for photographic plates and slides are fitted with safety locks, so that should the controller forget to close them an electrical device rectifies the omission. During an X ray examination the dispensary is lit by a special filtered ray lamp which, while not interfering

FIG. 2.

The interior of the van with a consultation in progress.

with the clearness of the image on the screen, does not leave the patient in the dark. The X ray apparatus can be carried into the patient's bedroom in case he is unable to leave the house. We are told that inquiries for motor vehicles of this type have been received from America, Belgium, and especially the Balkan countries.

A HOSPITAL FANCY.

AN account of the hospital of the future, as imagined by one who evidently derides many scientific "improvements" of to-day, is amusingly provided in the current number of the *St. George's Hospital Gazette*. The leading member of the staff is the "head electrical expert and master of mechanics," known as H. E. Next to him come in order electroradiological therapeutists, biochemicosanguinologists, uroproctologists, proctourologists, aurorhinists, rhinoaurists, bacteriopathological experts, electromechanicians, one physician and one surgeon! There is no dentist on the staff, for no patient is admitted to the hospital who still retains any teeth, because of the possible infection from these. The routine preparation of the stranger who desires to visit the hospital takes seven days, so thoroughly imbued are the authorities of the institution with the principles of scientific preventive medicine. Inside the hospital all use of the feet is abandoned, transport being entirely by electric propulsion or by aeronautics. In the operating theatre the table suddenly appeared under no apparent motive power and rolled itself into the middle of the theatre. A remarkable rumble heralded the arrival of the unconscious patient who was wafted on to the operating table. This, worked from without, executed a remarkable series of convulsive jerks till the patient was in the position required by the uroproctologist about to operate. He glided in on and was removed from a small electric trolley and was suspended at the convenient height in proximity with the patient's exposed anal area. This was rapidly prepared by aero-sterilisation, and the accompanying din put a premature end to the observer's visit. The imaginary hospital appears to be placed in America, but the writer's attitude and initials, J. B., are suggestive of John Bull.

THE PREVENTIVE MEDICINE OF DIVORCE.

WHILE some are disposed to believe in haste that marriage is an outgrown institution, others, equally aware of the growing divorce lists, are sure that sick marriages may often be cured and still more often the sickness be prevented. Physicians in many lands have been offering their services in the solution of this human and social problem. In June last the French Congress of Legal Medicine discussed the value of the medical pre-nuptial certificate.[1] The object envisaged was not merely to detect venereal disease but also other forms of contagious disease, hereditary defects, and early stages of such diseases as tuberculosis which are liable to make more rapid progress under

[1] Mariage eugénique et certificat prénuptial, Tribune Méd., 1929, lxiii., 399.

the strain of marriage and pregnancy. The objections raised to the institution of this certificate were directed only against its compulsory features and not against the essential proposal that medical examination before marriage is to be encouraged. In Germany the Berlin-Steglitz section of the National Association of Red Cross Women has established a "matrimonial consultation service" to help married couples to overcome or to avoid the difficulties that arise in the course of married life.[2] Although this service is directed by a psychologist who is not a graduate in medicine, it is explained that the service works in close coöperation with the public health service. At the third international congress of the World League for Sexual Reform, held last month in London, a paper by Dr. Abraham Stone, of New York, was read in absentia. The writer pointed out that there is even a statistical correlation between premarital examination and happiness in the future married life. The importance of this procedure is again emphasised in a paper published still more recently.[3] "The preventive medicine of divorce," writes Dr. Earp, "consists in premarital advice not only on how to choose, but also on how to live with the chosen mate; supplemented by premarital medical examination, designed to exclude impossible partnerships and to safeguard others from unnecessary difficulties and pain."

"ELECTRICAL SECURITY."

THE enormous increase in the use of electricity throughout the country, not only for lighting but for other services, implies a higher standard of safety in electrical installations. The wiring which has proved adequate for the lighting of a house may fail disastrously when required to carry the current needed for electric fires; in particular electro-medical apparatus of all kinds require a high standard of workmanship not only in the instrument but also in the supply feeding it. The Electrical Contractors' Association have issued a small booklet under the above title which deals with these and kindred points. The different types of installation are explained with the advantages, limitations, and relative cost of each; the makeshifts of careless wiring are tabulated and types of satisfactory fittings are described and illustrated.

The booklet has practical value, not only for the electrical engineer, but for every user of electrical power. The question arises, however, whether the high standard of safety demanded here is practicable. Most of the recommendations are based on regulations drawn up by the Institute of Electrical Engineers, and in the main they form an invaluable standard. When such schemes are drawn up the necessity of avoiding risks is felt so strongly that often an unreasonable margin of safety is demanded. Later it is found in practice that it is perfectly safe to ignore some particular rule and trust to experience, with the inevitable result that a rule which can be broken with impunity brings the whole scheme into contempt. Thus a rule originally framed to ensure perfect safety may have exactly the opposite effect in practice.

As an example, take the condemnation of ordinary twin flex which, according to this booklet, should be confined to stationary lights. The use of this form of wire for taking current to all sorts of portable apparatus is nowadays so universal that it will need more evidence than is given here of the dangers involved before the public is likely to abandon its use. The alternative specified consists of three flexible wires in an outer cover. It is difficult to see the superiority of such a cable except in the matter of kinking, whilst the increase in cost would be enormous.

MOTHERCRAFT.

MEDICAL men and women, even if they are not in practice are apt to be called into consultation on matters of mothercraft in and out of season, though their advice is not always accepted. Dr. L. G. Housden[4] has anticipated many of the questions usually asked, and suggests to his readers "if your friends worry you excessively, give them this book to read." He opens his introductory letter with the disarming statement: "This is not a medical book, but a series of short chapters dealing in a practical manner with the various problems of babyhood." The teaching is, in fact, quite elementary, and could be appreciated by young mothers of no great educational attainment, though some of the recommendations are hardly within the reach of poorer sections of the community. Dr. Housden is a relentless advocate of breast-feeding, but the faithful disciple of Sir Truby King will read with surprise the suggestions that for the first few days of life a night-feed may be given; that mackintosh knickers are unobjectionable, and that half a teaspoonful of water between feeds is the most that a baby may receive, and that only in abnormally hot weather. The author points out the absurdity of believing that new-born infants are in need of either aperients or operations; the baby who passes irregular motions and the tongue-tied baby will both achieve normality with the exercise of patience, and circumcision should only be performed where there is some real difficulty in passing water. The aim of the book is to induce a sense of confidence in the mothers who read it, and many minor causes of alarm are robbed of their terror by straightforward analysis and explanation. Perhaps the best chapter is that on character training, which emphasises the importance of the personal as well as the material environment.

ANOTHER LOCAL ANÆSTHETIC.

A NEW analgesic called "perkain" receives warm commendation from those who have tried it both experimentally and in clinical practice.[1] Unlike cocaine, tutocaine, and other local anæsthetics, it is not a benzoamino-alcohol product, but is a complicated derivative of the quinoline group. It consists of colourless crystals which dissolve easily in water with an alkaline reaction. The solution can be sterilised by boiling, and can be used in conjunction with adrenalin. It is more slowly absorbed than cocaine, and poisonous effects are therefore less easily brought about, and are in many cases said to be far less. It is stated that there is no likelihood of acquiring a drug habit from perkain. It has given complete satisfaction as a surface analgesic on mucous membranes, and when injected into the bladder for cystoscopy. For this purpose 30 to 40 c.cm. of a 1 in 1000 solution was used. As a spinal analgesic for lumbar injection it has not given good results in seven out of the ten instances in which it was employed. So far the largest series of cases reported of the use of perkain for local analgesia is 200. One case of collapse is reported after the use of a solution much stronger than 1 in 1000.

LA CURE D'AIR.

IT is still not an uncommon practice for the physician to prescribe a sea voyage, and in the last century a trip to the antipodes was popular as a therapeutic measure. But the physician's armoury changes with the times, and Dr. Charles L. Julliot may be right when he suggests[2] that the aeroplane will eventually replace the ship as a therapeutic mode of locomotion. The use of aviation for the evacuation of wounded in time of war or the transport of sick in time of peace is already well known, but it is in Central Europe that the air is being exploited as a form of treatment. According to a well-known German medical review a young girl of 14 has been cured of a persistent cough by a trip in an aeroplane, while a neurasthenic patient has obtained a renewed zest for life. Nor is there anything surprising in this, for the altitude, the open air, the speed, and an occasional nose-dive are all stimulating experiences. The review sagely warns the enthusiast from submitting cases of acute mania or of advanced heart disease to an aerial cure, but for many other disorders it is thought that flying may replace visits to the Alps or other places of high altitude. Much is already known of the physiological changes which take place at high altitudes, and it is conceivable that such knowledge may be translated in terms of therapeutic value: air trips of graduated height and time for definite disorders, prolonged treatment in a captive balloon for chronic cases. But Dr. Julliot is a doctor of law, not of medicine, and he does not venture from the general recommendation to the special application.

"A NEW QUINOLINE DERIVATIVE."

A PAPER by Mr. George Armitage and others on the Use of a New Quinoline Derivative in the Treatment of Infection appeared on p. 968 of our last issue. The British Drug Houses, Ltd. (16, Graham-street, City-road, London, N. 1), inform us that they can supply the preparation therein described.

[1] Münch. med. Woch., Oct. 11th, p. 1714.
[2] Presse Méd., Oct. 12th, p. 1337.

[2] Information Bulletin, League of Red Cross Societies, 1929, viii., 263.
[3] Earp, J. Rosslyn: Marriage, Divorce, and the Doctor, Colorado Med., October, 1929, p. 339.
[4] Mothercraft. By Leslie George Housden, M.B., B.S. London: Herbert Jenkins, Ltd., 1929. Pp. 128. 2s. 6d.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.—Last week the Duchess of York opened extensions of this hospital at Haverstock Hill, which have cost £12,000. The enlargements include a new operating theatre, a dispensary, and a casualty department, additions to the pathological laboratory, a lecture theatre for nurses and post-graduates, additions to the accommodation of the resident medical staff, and a block of emergency beds which has necessitated the reconstruction and improvement of the private wing, in which there are 21 beds for paying patients